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wild and scenic river study

march 1979

BIG THOMPSON RIVER

COLORADO

The Heritage Conservation and Recreation Service (formerly the Bureau of Outdoor Recreation) conducted the field investigations for this study and prepared the formal draft report. Following reassignment of the study in March of 1978, the report was finalized and reprinted by the National Park Service.

United States Department of the Interior

Wild and Scenic River Study

BIG THOMPSON RIVER

Prepared by
National Park Service
Denver Service Center

in cooperation with

The Colorado Department of Natural Resources

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SUMMARY OF FINDINGS AND RECOMMENDATIONS

Public Law 93-621, amending the Wild and Scenic Rivers Act (P.L. 90-542), was signed into law on January 3, 1975. This amendment authorized the study of 29 streams, including the Big Thompson River within Rocky Mountain National Park, and required a report thereon to be submitted not later than October 2, 1979.

FINDINGS

The interagency federal-state study team determined that fishery values in the upper 11 miles (17.7 km), and geologic values in the lower 2.6 miles (4.2 km), of the Big Thompson River study corridor are outstandingly remarkable. Nevertheless, the 13.6-mile (21.9-km) study segment was deemed ineligible for inclusion in the national system because (1) its length did not meet or approximately meet the minimum 25-mile (40.2-km) criterion specified in the joint USDI-USDA *Guidelines*, and (2) the study team found no features of such an outstanding nature to justify an exception to the length criterion.

In addition, the entire segment is within Rocky Mountain National Park and is guaranteed continued full protection of its natural values. About 80 percent of the stream's length within the park also is managed as *de facto* wilderness and is included in a wilderness proposal now before Congress.

RECOMMENDATIONS

Because of the finding of ineligibility and the degree of protection the stream enjoys, it is recommended that the Big Thompson River not be designated a component of the National Wild and Scenic Rivers System. The study team also recommended that existing management policy, as it affects the stream and its immediate environs, continue pending Congressional approval of the Rocky Mountain National Park wilderness proposal.

CHAPTER I

INTRODUCTION

BACKGROUND

The Wild and Scenic Rivers Act (P. L. 90-542) was signed into law on October 2, 1968. Henceforth it was "declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations."

Eight free-flowing streams were established as the initial components of the National Wild and Scenic Rivers System, and 27 others were designated for study as potential additions. Subsequent to its passage, six amendments to the act have named numerous rivers as either components or potential additions to the system.

Public Law 93-621, an amendment to the act which became law on January 3, 1975, added 29 rivers to section 5(a)--the section of the act listing potential additions to the National Wild and Scenic Rivers System. Among these rivers was the "Big Thompson, Colorado: The segment from its source to the boundary of Rocky Mountain National Park." The legislation also required that the report on the river's suitability or nonsuitability be submitted to the President for transmittal to Congress no later than October 2, 1979.

THE STUDY

The joint federal-state team was formed to conduct the study of the Big Thompson River in January 1977. Coleadership was shared by the Bureau of Outdoor Recreation (and later by the National Park Service) and the Colorado Department of Natural Resources, represented by the Colorado Water Conservation Board. While the study was led by the Bureau of Outdoor Recreation, the National Park Service was also included as a study team member because of its role as the sole land-managing agency in the study corridor and because the potential impacts any proposal would have on lands under the agency's jurisdiction.

Existing data sources were utilized to the maximum extent for the description of the Big Thompson and the surrounding region. Various federal and state agencies provided assistance by supplying information to the study team and by reviewing material for accuracy and subject treatment. These agencies included the U.S. Forest Service, Colorado Geological Survey, and Colorado Division of Wildlife.

In August 1977 the team made a field reconnaissance of the study segment to verify the accuracy of the secondary sources upon which the regional description relied and to make a first-hand evaluation of the Big Thompson's suitability for inclusion in the National Wild and Scenic Rivers System.

Following the field study, team members discussed the stream's eligibility for addition to the national system. In evaluating the Big Thompson, reliance was placed on the criteria contained in the joint Department of the Interior-Department of Agriculture publication *Guidelines for Evaluating National Wild and Scenic Rivers System Under Section 2, Public Law 90-542.*

The public has been involved in the study from its inception. An initial public meeting was held in March 1977 to discuss provisions of the act, the purpose and scope of the study, and to solicit public input. The study has been noncontroversial from the beginning due both to the stream's location (within a national park) and characteristics (short; no water-based recreation other than fishing). Rocky Mountain National Park has periodically updated the status of the study through the local press. A news release was made available in September 1977 to regional media announcing the finding of ineligibility and encouraging additional public comments; no objections were raised to the study team's determination.

CHAPTER II

THE REGION -- ROCKY MOUNTAIN NATIONAL PARK

PREFACE

The segment of the Big Thompson River which Congress designated for study for potential inclusion in the National Wild and Scenic Rivers System is entirely within the exterior boundaries of Rocky Mountain National Park. The park itself was chosen as the focus for the regional description; however, in considering population and economic factors, the regional boundary has been extended to include all of three counties which are represented within the exterior park boundaries as well as nearby cities along the Front Range of the Rocky Mountains.

Since certain activities, such as hunting, logging, mining, and water resources development, are prohibited by the act establishing the park (38 Stat. 798), only those which conform to present management objectives are included. Therefore, emphasis in the following description is on regional environmental and recreational values. Because uses made of the Big Thompson River outside (below) the boundaries of Rocky Mountain National Park do not impact the study reach and are not impacted by the study reach, they generally are not discussed.

REGIONAL OVERVIEW

Rocky Mountain National Park contains 412 square miles (1,067 sq. km) along and west of the Front Range some 65 miles (105 km) northwest of Denver (see figure 1). The Continental Divide forms the backbone of the park and stands as a dramatic example of the ancient forces which created the Rocky Mountain chain. There are 71 peaks exceeding 12,000 feet (3,658 m) in the park, and nearly every important element of mountain physical geography can be found.

Excellent examples of erosional features such as stream-cut valleys, waterfalls, avalanche chutes, and glaciated gorges are displayed, as are such outstanding depositional formations as morainal ridges, talus cones, and glacial lakes. Metamorphic rocks, remnants of the Precambrian era, attest to the vast periods of time involved in the formation of this area. The long geologic process, during which mountains were uplifted from a great inland sea and were subsequently eroded, resulted in today's panorama.

The plants and animals of the various life zones complement the majestic physiography. Although the park's vegetation is remarkable in its variety and adaptation to harsh conditions and climate, the alpine flora exhibit the most distinctive adaptations to their environment. The myriad colors of the wildflowers, the different shades of green of the conifers, the seasonal changes in the deciduous species, and the stark contrasts of winter are some of the perceptions the park presents its visitors.

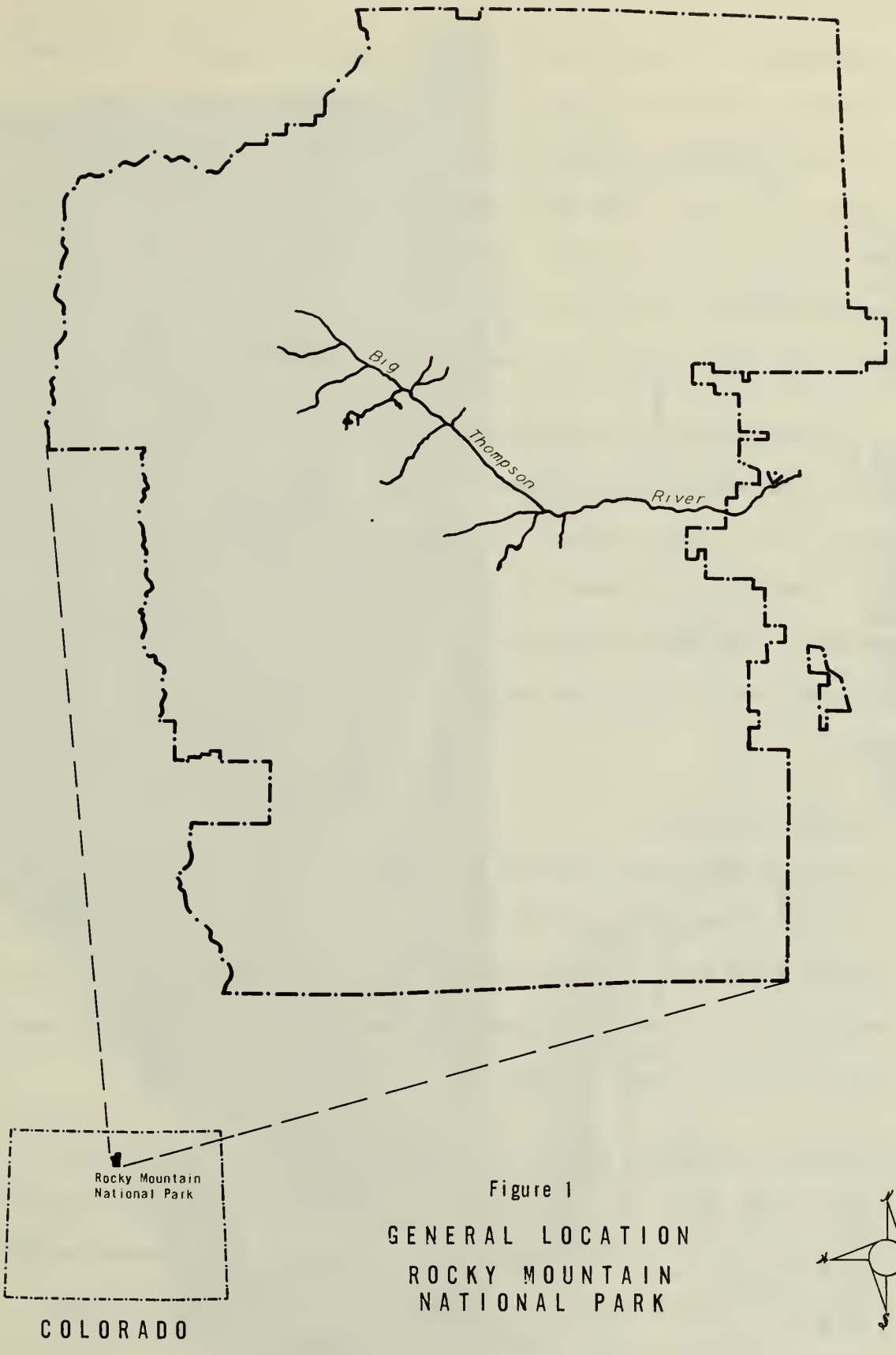

Figure 1

GENERAL LOCATION
ROCKY MOUNTAIN
NATIONAL PARK

1 0 1 2 3 4 miles
1 0 1 2 3 4 5 kilometers

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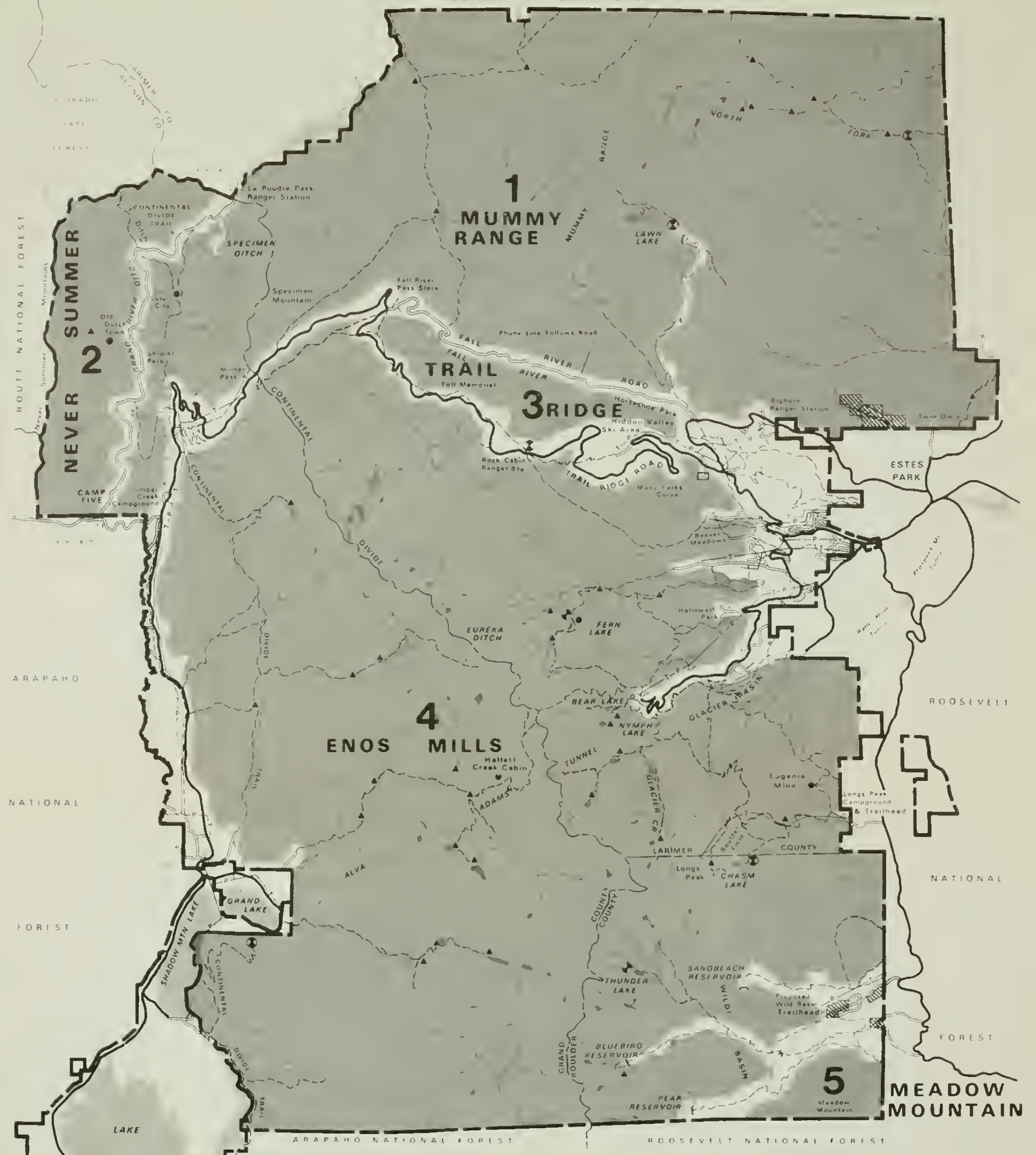
In addition to an ever-changing array of natural vegetation, 67 species of mammals and over 200 species of birds frequent the park. Views of the larger mammals, such as elk, mule deer, mountain lion, bighorn sheep, bobcat, and black bear, occasionally reward the observant visitor. Chipmunks, squirrels, skunks, rabbits, porcupines, and coyotes are common throughout the park. The gray jay, Stellar's jay, robin, Clark's nutcracker, and mountain chickadee are birds frequently seen by visitors.

In 1978 the National Park Service proposed that just over 240,000 acres (97,140 ha) within Rocky Mountain National Park, representing over 91 percent of its total acreage, be designated as wilderness and included in the National Wilderness Preservation System (see figure 2). The measure is now before Congress. The original wilderness proposal for the park, made in 1974, called for designation of just under 240,000 acres.

LOCATION AND ACCESS

Rocky Mountain National Park is located in north-central Colorado, northwest of the major population center of Denver. As displayed in figure 2, the park is nearly surrounded by the Roosevelt, Arapaho, and Routt National Forests; the Shadow Mountain National Recreation Area; and the Colorado State Forest.

The region is readily accessible to most of the State's population. The fast-growing chain of Colorado cities, from Fort Collins south through Denver to Pueblo, is connected by Interstate Route 25. Several highways lead from these cities to the park. From Denver, U.S. Highway 36 angles north and west through Boulder to Estes Park.



LEGEND

- PROPOSED WILDERNESS
- POTENTIAL WILDERNESS ADDITION
- NONFEDERAL LAND
- MAJOR ROAD
- MINOR ROAD
- PRIMITIVE CAMPSITE
- SANITARY CONTROL POINT
- HISTORIC SITE
- P T W POWER–TELEPHONE–WATER LINE
- DAM
- WATER TUNNEL
- FIRE LOOKOUT–RANGER CABIN
- GLACIER
- TRAIL

N

ACREAGES

GROSS PARK	263,793 14
FEDERAL LAND	263,267 47
NONFEDERAL LAND	525 67

	UNIT	WILDERNESS
MUMMY RANGE	1	83 920
NEVER SUMMER	2	9,500
TRAIL RIDGE	3	4 300
ENOS MILLS	4	140,110
MEADOW MOUNTAIN	5	2,200
	TOTAL	240,030
POTENTIAL WILDERNESS ADDITION		284

Figure 2

WILDERNESS PLAN

ROCKY MOUNTAIN NATIONAL PARK

COLORADO

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An alternate scenic drive is along State Highway 7 which departs U.S. 36 north of Boulder and parallels the park's eastern boundary north to Estes Park. U.S. Highway 40 provides access from the south and west through Granby, and U.S. 34 enters the park from the east.

On July 31, 1976, the Big Thompson flood destroyed a large portion of U.S. 34 between Loveland and Estes Park. The roadway has been repaved and is adequate for normal traffic. The Colorado Highway Department projects that total reconstruction of the road will be completed by May 1979.

POPULATION

Rocky Mountain National Park is situated just northwest of the rapidly growing Front Range megalopolis. Denver is at the center of this population concentration, and the park is convenient to the metropolitan area's 1.2 million inhabitants. Recent population statistics and estimates for the State of Colorado and those counties which contain the park are given in table 1.

TABLE 1

POPULATION OF THE STATE OF COLORADO AND THOSE COUNTIES WHICH CONTAIN ROCKY MOUNTAIN NATIONAL PARK--1960-75

	Year			Percent Change 1970 ---- 1975
	1960	1970	1975	
Boulder County	74,254	131,889	166,500	+26.2
Grand County	3,557	4,107	6,200	+50.3
Larimer County	53,343	89,900	120,900	+34.5
State of Colorado	1,783,947	2,209,828	2,534,000	+14.7

SOURCE: 1960 and 1970 data are from the U.S. Bureau of the Census; 1975 figures are from the "Federal-State Cooperative Program for Population Estimates."

ECONOMY

Reflecting conditions prevalent throughout the State, the economic emphasis of the Boulder, Grand, and Larimer County study area is rapidly shifting from agriculture to retail trade and manufacturing. Growth of the retail trade and service sectors of the economy is partially due to recreation and tourism. Many of the region's secondary and tertiary service industries, such as lodging, auto repair, amusement, and other businesses, are dependent to a large degree on the natural resources of the region and the recreationists they attract.

About 23 percent of the labor force is engaged in wholesale and retail trade; 18 percent each in government and services; and 14 percent in manufacturing. The construction industry accounts for about 6 percent of the work force and continues to expand as new businesses move into the area.

In 1970, according to the Bureau of the Census, Boulder County had the highest per capita income within the region, amounting to $4,193; Grand and Larimer Counties report $3,945 and $3,518 respectively.[1/] However, the greatest increase in per capita income between 1969 and 1972 occurred in Grand County where there was a change of more than 31 percent, as opposed to Boulder County where the increase was about 24 percent. For purposes of comparison, per capita personal income for the Nation in 1970 was $3,199, and for Colorado it was $3,106. Median family income in 1970 was $9,586 for the Nation and $9,552 for Colorado.[2/]

Wholesale and Retail Trade

The largest economic sector in the region is wholesale and retail trade. In 1972 retail trade accounted for sales totaling $622.6 million in the 3-county area. Nearly 60 percent of this amount came from Boulder County and 39 percent from Larimer County.

Government and Services

Public agencies, including the State school system, share second place with the services sector as the largest employers in the region. Tourism during the summer months requires the employment of additional persons with the National Park Service, U. S. Forest Service, and Bureau of Land Management, as well as with county and local governments and businesses. Colorado State University at Fort Collins in Larimer County is the largest service employer in the 3-county region.

[1/] U. S. Department of Commerce, Bureau of the Census, County and City Data Book (1972).

[2/] Ibid.

Manufacturing

The major industrial employers in the region are located in Boulder and Larimer Counties. Total dollar value from manufacturing in 1972 was $349.0 million, 69 percent originating in Boulder County. Two of the largest manufacturers in the region, IBM and Atomics International, a division of Rockwell International, are located in Boulder County. These companies employed more than 7,300 persons in 1975.

Agriculture

Approximately 2 percent of the work force is directly employed in agriculture activities. There are about 1,800 farms in the region which comprise more than 1,130,000 acres (457,311 ha).

The total value of farm products sold in 1972 was $56,099,000. The larger portion of the total, $39,467,000, was derived from livestock, poultry, and related products. Crop production value amounted to $16,627,000 in 1972. Forest production accounts for only a small percentage of the region's total agricultural production.

Mining

Although only about 1 percent of the labor force is engaged in mining, over $18 million in net income was derived from this activity in 1973. This represents about 3 percent of the total value of mineral production in Colorado. In order of value, stone, fluorspar, lime, and cement led the list of raw materials mined in Boulder County. Gypsum and natural gas are important in Larimer County; only sand and gravel are mined in Grand County.

Tourism

The tourist and recreation industry is of major importance to the economy of the State of Colorado and the counties being described. In this region, recreation resources are dominated by Rocky Mountain National Park, Roosevelt and Arapaho National Forests, and Shadow Mountain National Recreation Area. Lakes, reservoirs, streams, and ski areas attract tourists and sports enthusiasts from throughout the world. Guest ranches and packing services are available year-round. Estes Park and Grand Lake, located on opposite sides of Rocky Mountain National Park, benefit greatly from the tourist trade. In 1976, nearly 2-3/4 million visitors were attracted to the park.

RECREATION

Of the nearly 2-3/4 million visitors in 1976, 1,034,050, or 38 percent, entered through the Fall River station west of Estes Park on U. S. 34. The Big Thompson flood of July 31, 1976, devastated 25 miles (40 km) within the canyon outside the park, destroyed U. S. 34 from Estes Park to about 7 miles (11 km) west of Loveland, and significantly reduced park visitation for several months. The number of tourists entering the park was down 20 percent for the 3-month period from August through October compared to the previous year. Entries at Fall River were off 11 percent for 1976 compared to 1975. Monthly and annual statistics on visitation for the years 1973-76 are given in table 2.

TABLE 2

VISITATION TO ROCKY MOUNTAIN NATIONAL PARK
1972-76

	Year				
	1972	1973	1974	1975	1976
January	45,122	64,181	40,865	62,320	56,006
February	47,390	61,918	53,049	46,124	68,415
March	55,203	65,280	69,746	57,366	72,098
April	49,753	62,446	63,663	60,972	79,427
May	125,079	136,880	142,757	106,475	117,054
June	413,377	428,682	395,897	388,330	462,708
July	647,891	592,275	610,298	712,133	729.851
August	642,794	626,869	617,311	786,625	600,911
September	283,796	269,870	282,631	350,918	307,011
October	94,551	113,017	108,677	166,383	133,845
November	43,536	44,829	47,248	54,676	57,616
December	71,130	55,713	68,951	62,467	60,485
Total	2,519,622	2,521,960	2,501,093	2,854,789	2,740,427

Recreationists visiting the region can take advantage of a variety of activities. The National Park Service has identified three types of recreational areas within the park--the scenic viewing, day-use, and primitive or backcountry zones.

Scenic Viewing Zone

The scenic viewing or drive-through zone attracts the most visitors. Trail Ridge Road, one of the few roads crossing the Rockies over a ridge rather than through a valley, offers a spectacular drive. The route remains above tree line for 11 miles (18 km) and reaches 12,183 feet (3,713 m) as it crosses the crest of the Front Range and the Continental Divide. Hourly traffic counts for Trail Ridge Road reach a peak of 500 to 700 cars during the summer.

Fall River Road, an old dirt road nominated to the National Register of Historic Places, parallels Trail Ridge Road for 9 miles. Leaving Horseshoe Park at an elevation of 8,600 feet (2,621 m), it joins Trail Ridge Road at Fall River Pass near 11,800 feet (3,597 m). About 25,000 cars make this one-way trip up the mountain range during the few summer months the road is open.

The Bear Lake spur winds 9 miles (14 km) from the Beaver Meadows entrance to a dead end at Bear Lake. It also serves the Moraine Park Campground, the Glacier Basin Campground, the Moraine Park Visitor Center, the Moraine Park and Glacier Creek Livery Stables, and the

Sprague Lake Picnic and Environmental Study Area. It reaches important backcountry trailheads as well as popular day-use areas. Travel studies show that an average of 780 cars per day use the terminal parking area during the peak travel season.

Day-Use Zone

The day-use zone is normally utilized in association with existing roads for activities such as picnicking, day-long hikes, short walks, horseback riding, crosscountry skiing, and wildlife observation. Naturalist-led talks, walks, and hikes attracted 28,971 participants in 1976. Day usage of the park's 300 miles of trails is estimated to exceed 550,000 visits annually. Horseback riding is also popular, exceeding 40,000 trips in 1976. Nearly 14,000 of these were reported by the two liveries operated by concessioners within the park.

Backcountry Zone

The primitive or backcountry zone offers a range of experiences from extended isolation in a trailless area to a short walk-in experience. Most of the zone is included in the proposed wilderness area. Activities include long-distance hiking, backpacking, crosscountry skiing, horseback riding, interpretive activities, and overnight tent camping. Backcountry permits are issued for the designated camping areas, currently numbering 102, in order to limit and control the impact of use. In 1976, 52,943 campers were registered in the backcountry zone.

Camping Facilities

The 5 roadside campgrounds in the park provide more than 700 campsites. In 1976, 255,114 overnight stays were recorded at these campgrounds. Of this total, tent campers accounted for 138,778 (54 percent); recreational vehicles, 105,143 (41 percent); and organized groups, 11,193 (4 percent). Total camping figures by month for 1976, including campers registered in the backcountry zone, are shown in table 3.

Concessioners

In addition to the liveries mentioned previously, concessioner-operated recreation facilities include the ski area consisting of four tows in Hidden Valley. A restaurant-ski rental shop complex is located at the base. In the winter of 1976-77, only 10,612 skiers used the area during its 79 days of operation due to lack of adequate snow depth. In the previous season, a total of 58,747 skiers was recorded at Hidden Valley during 118 days of operation. There are 17.1 acres (6.9 ha) of cleared ski trails and a parking area for 288 cars and buses.

TABLE 3

CAMPING IN ROCKY MOUNTAIN NATIONAL PARK - 1976

Month	Type of User (Overnight Stays)				
	Tent Campers	Recreational Vehicles	Organized Groups	Registered Backcountry	Monthly Total
January	343	162	0	540	1,045
February	256	230	0	527	1,013
March	587	356	0	523	1,466
April	1,256	1,008	0	386	2,650
May	5,370	3,164	0	1,220	9,754
June	28,701	21,171	1,966	6,741	58,579
July	37,064	33,395	4,644	15,208	90,311
August	40,118	27,913	4,154	17,890	90,075
September	20,639	13,042	429	7,931	42,041
October	3,770	4,151	0	1,188	9,109
November	407	396	0	364	1,167
December	267	155	0	425	847
Annual Total	138,778	105,143	11,193	52,943	308,057

HISTORY AND ARCHEOLOGY

History

Throughout pre-history and history one of the main attractions of the Rocky Mountain National Park region has been its abundance of wildlife. The charcoal remains of hunters' fires found in the area are evidence of seasonal habitation dating back 10,000 years. The origins of these earliest-known inhabitants remain a mystery.

Although the growing season was too short to support the permanent-dwelling agricultural Indians, the Ute and Arapaho Indians utilized this region as a hunting ground during most of the 19th century. The Ute inhabiting the mountains west of the park and the Arapaho living on the plains to the east met and sometimes clashed on this common territory. The Ute Trail, which traverses the Continental Divide in proximity to Trail Ridge Road, was a major route for both these tribes across that natural barrier.

White men began exploring this region in the early 1800s. Spanish or French explorers or American trappers probably discovered the park's highest landmark, later named Longs Peak in honor of Colonel S. H. Long. Zebulon Pike and Colonel Long, leaders of expeditions in 1806 and 1820 respectively, described the park region in their journals.

Joel Estes, the first permanent resident of the region, initially saw this country on a hunting trip in 1859 and was so impressed that he returned with his family to settle in 1860. He remained in the secluded park for 6 years before he sold his property. Named for him, Estes Park changed hands several times until, in 1872, the Irish Earl of

Dunraven claimed 15,000 acres (6,073 ha) as his private hunting domain. Much of his holding was legally taken away, and in 1906 he sold the remainder.

Many of the early landowners saw the potential for developing Estes Park as a tourist center. When an efficient road system was put in, the city grew and prospered relatively unaffected by the nearby gold rush cycles of boom and bust. Tourist income provided a certain economic stability as this spot became a favorite retreat for Denverites and other vacationers.

Enos Mills, a Kansas farm boy, came to live in Estes Park in 1884 when he was 14. He developed the idea of a large national park to preserve part of the Front Range in its natural state. This self-educated man became one of the nation's leading naturalists and spent much of his time writing about the recreational and scenic wonders of the Rocky Mountains. For 7 years he campaigned across the country promoting his park concept. Establishment of Rocky Mountain National Park on January 26, 1915, and its dedication ceremonies on September 4, 1915, fulfilled Mills' lifetime dream.

When the park was established, the boundaries were quite different than they are now. The east and west boundaries were drawn to exclude much of the privately owned land, though there were still numerous inholdings. Private inholdings now amount to 653 acres (264 ha), or 0.25 percent of the park's total acreage. Under the present resource management plan, the National Park Service is attempting to restore altered ecosystems to

their original condition through the acquisition of existing inholdings and water rights.

Four areas are currently listed in the National Register of Historic Places--the William Allen White Cabins, Grand River Ditch, North Inlet Shelter Cabin, and Moraine Park Lodge. There are six other sites listed in table 4, and located as shown in figure 3, which have been nominated to the National Register.

TABLE 4

HISTORIC SITES WITHIN ROCKY MOUNTAIN NATIONAL PARK
WHICH HAVE BEEN NOMINATED TO THE NATIONAL REGISTER OF HISTORIC PLACES

Historic Sites	Location	Description	Condition
Dutchtown	Timberline, east slope of the Never Summer Range	Inhabited for only 5 years by prospectors searching for ore. Representative of numerous tiny settlements of the gold rush period about 1880.	4 decaying cabin ruins. Original site unaltered. Deteriorated.
Holzworth Homestead Historic District	Near headwaters of the Colorado River, Never Summer Range to the west and Front Range to the east.	Built from 1905-1945; by 1920 it became a well-known dude ranch. The district is composed of more than a dozen buildings related to the Holzworth Trout Lodge. They are used by the National Park Service to interpret pioneer life in the Colorado Valley. The Homestead cabin was built in 1917 with the intention of making it a working ranch.	Fair. Altered. Original site.
Lulu City	Upper Colorado River Valley, west side of Park.	Because it is in Rocky Mountain National Park, Lulu City is probably one of the most frequently visited primitive mining towns in the United States. Established in 1879 as a silver mining town, there were 40 houses by 1881. Lulu City was abandoned by 1884.	Walls of 3 cabins are recognizable, remains of 8 others barely discernible. Original site. Ruins.
Old Fall River Road Historic District	Endovalley to Fall River Pass, east side of Park.	This was the first highway to cross Rocky Mountain National Park and one of the first transdivide highways in Colorado. The road was constructed between 1913-20 by convicts.	Gravel Road. Original site. Unaltered. Good.
Ute Trail	Traverses Trail Ridge from Upper Beaver Meadows to Milner Pass.	Indian trail providing a transcontinental route for both Ute and Arapaho tribes.	Foot path, wagon ruts. Partially obscured.

TABLE 4 (Continued)

Historic Site	Location	Description	Condition
Utility Area Historic District	Headquarters Maintenance Area	The Annex building is the most imposing log frame building of the group. Originally, in 1920, it was a dorm and mess hall. It is now used as a meeting hall, guest quarters, sign shop, and post offices.	Original site. Altered. Fair.

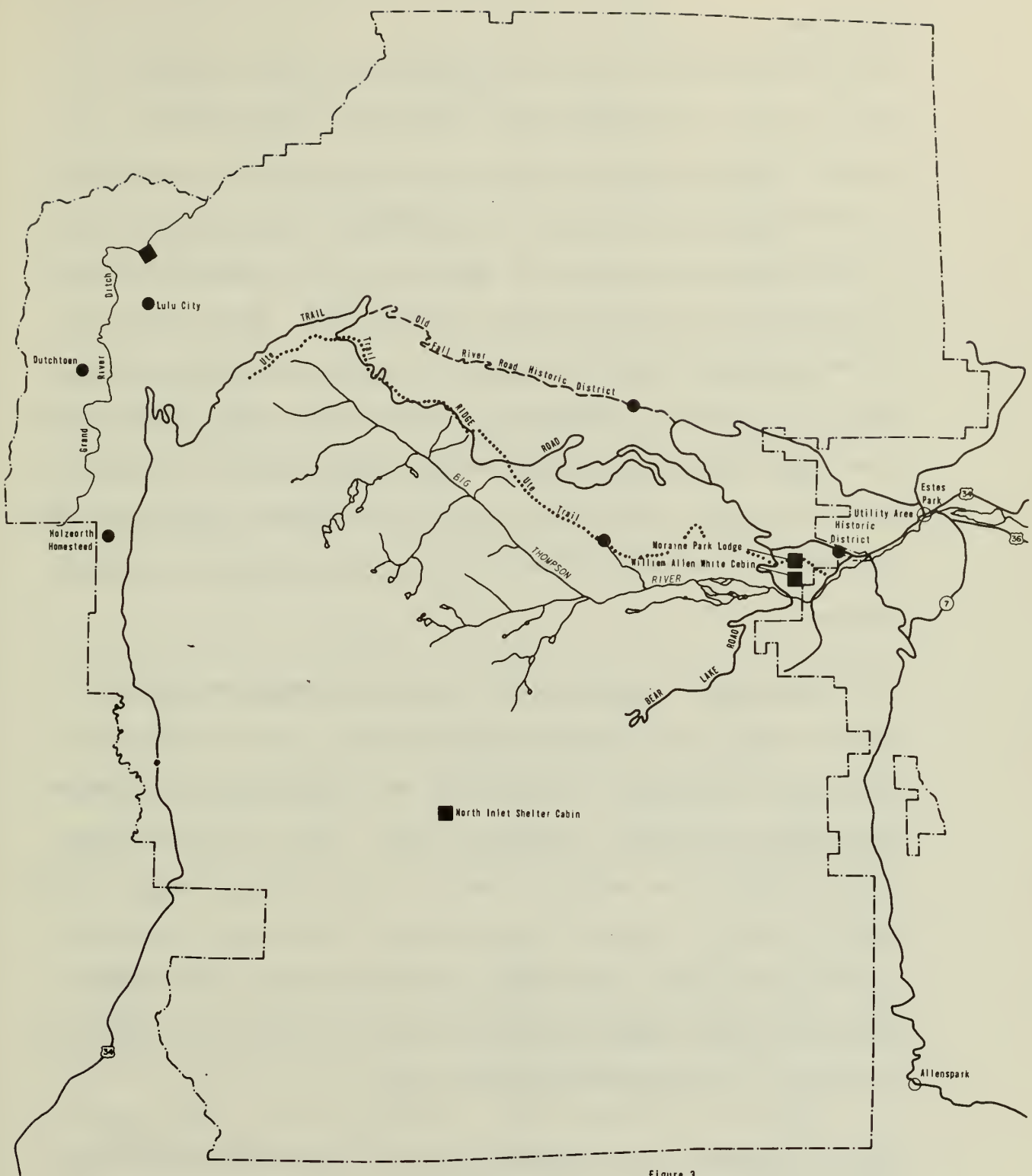
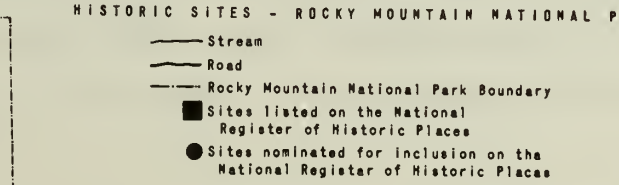
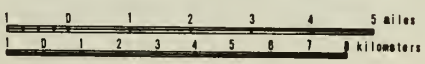


Figure 3

HISTORIC SITES - ROCKY MOUNTAIN NATIONAL PARK





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Archeology

Aboriginal sites and trails in Rocky Mountain National Park have been identified in Elizabeth Yelm's 1933 thesis, "Archeological Survey of Rocky Mountain National Park - Eastern Foothills Districts," and Wilfred Husted's 1959 thesis, "A Proposed Archeological Chronology for Rocky Mountain National Park Land on Projectile Points and Pottery." Mr. Husted conducted an additional survey in 1961. Much of the park has been unsystematically pot-hunted by visitors and nearby residents making it difficult to determine the locations and types of archeological sites; thus, even the artifacts that have been turned over to the park's museum contribute little to the total historic picture because they have been removed from their original context without having been properly recorded.

The first category of sites found by Husted are campsites--the best examples being Flattop Mountain, Oldman Mountain, and possibly Forest Canyon Pass--all linked by the Old Ute Trail, which has been nominated to the National Register of Historic Places. Part of this trail runs along Trail Ridge and ranges in elevation from 11,500 to over 12,500 feet (3,505 - 3,657 m). Typical of the evidence found at these campsites are a firepit, bits of burned bone, and stone chips. Archeological sites are abundant along this ridge because of its location on the most popular route across the Continental Divide.

Forest Canyon Pass, the site where the Fall River and Old Ute Trails converged, overlooks Forest Canyon directly above the headwaters of the Big Thompson River. Evidence such as pottery chips, arrowheads,

and scrapers indicate that this area had been used for at least 8,000 years as a lookout and possibly as a campsite.

The two other major campsites which the Ute Trail links are Flattop Mountain and Oldman Mountain. Oldman Mountain, just outside the park's eastern boundary, is mentioned because it is at the eastern end of the Old Ute Trail, and there is a possibility that groups that camped here also camped at Forest Canyon Pass. Pottery uncommon to this area was found at these two campsites and at two other sites on Trail Ridge. The pottery from the Oldman Mountain site, exhibited in the park's collection, indicates occupation as early as A.D. 300.

In addition to the campsites, a game blind was found at the point of a 90-foot (27-m) alignment gap on Trail Ridge. The location is logical for a blind since a game trail goes over the pass. The structure consists of two narrow rows of rock which extend along the eastern edge of the ridge, and its height was probably not more than 2 feet (0.6 m).

Another type of site was used as a hunting camp. Artifacts in these areas are very scarce because of the temporary and sporadic occupation. They are usually found in high valleys, isolated saddles between mountain peaks, and along ridges. Five sites north of Thunder Lake in the Wild Basin are excellent examples where a few stone tools such as projectile points, scrapers, and blades have been found.

Archeological sites are common in clearings, along rivers, and in low meadows such as Moraine, Horseshoe, and Beaver Parks. Streams within Rocky Mountain National Park which join the Big Thompson outside the park's boundary are rich in archeology. These include Fall and Roaring Rivers and Mill and Glacier Creeks. Significant sites have also been located in the Cache la Poudre and Colorado drainages.

GEOLOGY AND PHYSIOGRAPHY

Excellent displays of the geological forces which created the Rocky Mountain chain are seen in Rocky Mountain National Park. Its geology, in fact, was one of the main reasons for its preservation as a national park.

The Continental Divide stretches for 40 miles (64 km) within park boundaries. Elevations range from 7,640 feet (2,329 m) on the east side to the 14,256 feet (4,345 m) of Longs Peak. Within the park there are 107 peaks that reach over 11,000 feet (3,353 m). Some of the higher ones can be seen from Fort Collins, Denver, and other points to the east. The mountainous relief of Rocky Mountain National Park is evident in figure 4.

The origins of the entire region have been traced back more than a billion years to the Precambrian era. The area was covered by an inland sea which invaded and retreated for tens of thousands of years, creating a layer of sedimentary rock. Under tremendous pressure and heat, the original sedimentary rock was changed by compaction and folding into metamorphic rocks - gneiss and schists - arranged in

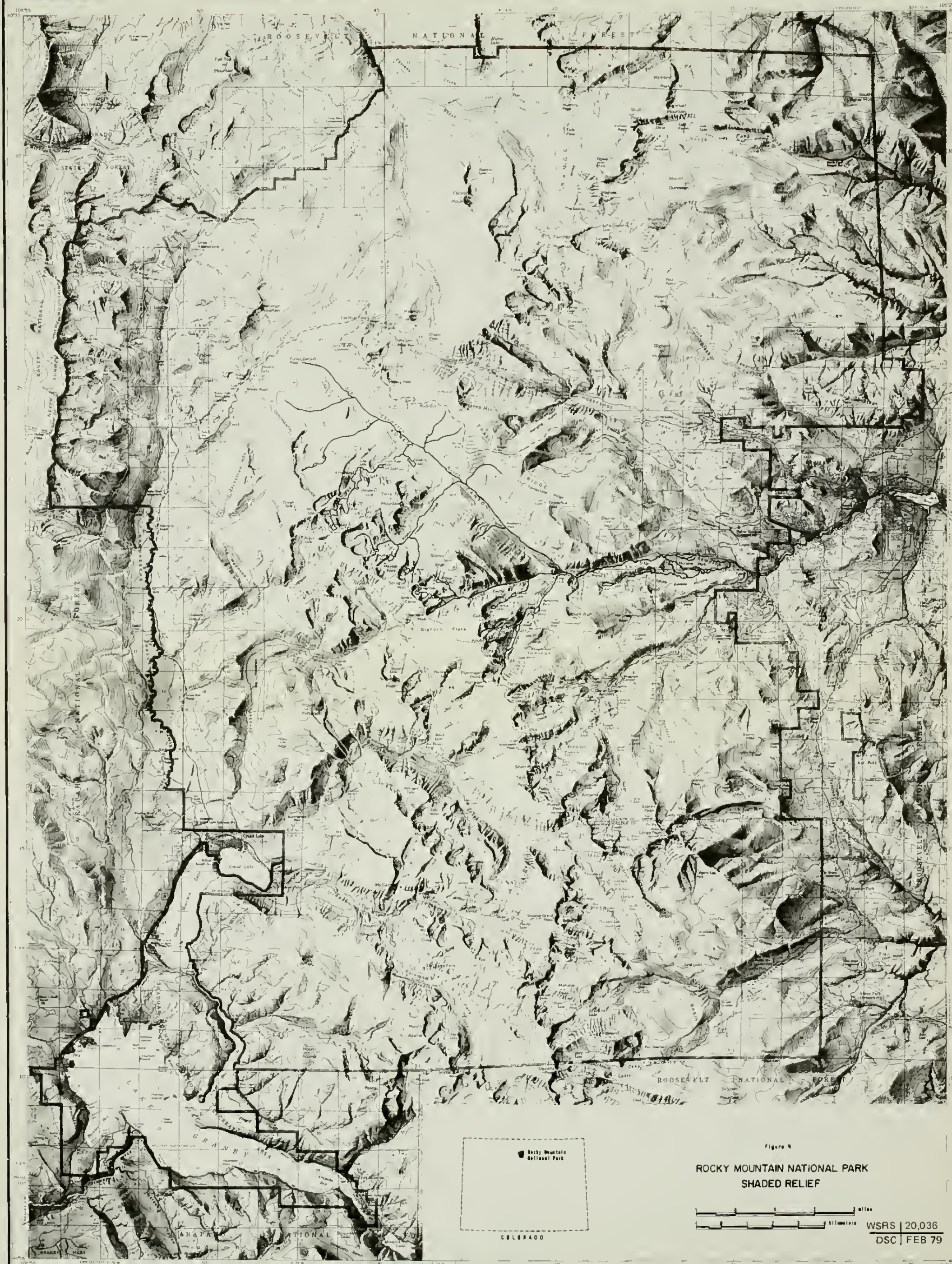

Figure 9

ROCKY MOUNTAIN NATIONAL PARK
SHADED RELIEF

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parallel layers. These ancient rocks went through two more transformations resulting in the igneous rock type found in Rocky Mountain National Park today. Magma forced its way into the faults and cracks of the arching earth and hardened into masses of granite, later recrystallizing as veins of pegmatites. Thousands of feet of sediment, whose traces are found east of the park, were later deposited over these rock types. Erosion gradually reduced the land surface to a rolling plain.

Sixty million years ago an upward force fractured the earth's crust, lifting the irregular blocks of sedimentary rock and the masses of granite and gneiss beneath them. The best evidence of this action, which created the Rocky Mountains, can be seen along the western boundary of the park and on Longs Peak. During this period, known as the Larimide Revolution, the sea withdrew for the last time. The land continued to rise, and the sedimentary layers were completely eroded, revealing the core of Precambrian gneiss now visible. A geologic profile of the region is displayed in figure 5.

In relatively recent times, perhaps 1,000,000 years ago, lowered global temperatures produced the first Ice Age. Although the great continental glacier did not extend as far as Colorado, local glaciers were formed in the crests and flowed down the valleys of the Rocky Mountains. These glaciers scoured the face of the land, scooping out huge bowl-like depressions called cirques near their sources and widening canyons along their paths into U-shaped valleys.

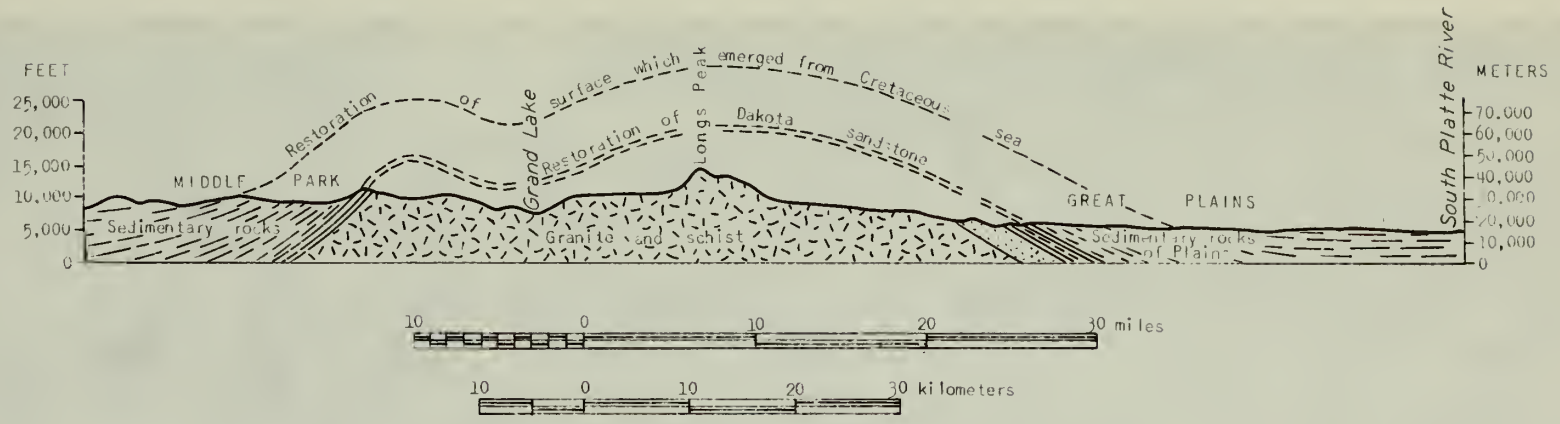

Figure 5

EAST-WEST GEOLOGIC PROFILE SECTION THROUGH LONGS PEAK

Profile section across the Rocky Mountains east and west through Longs Peak and Grand Lake, showing the present surface in solid line and the hypothetical ancient surfaces which were warped by the rise of the mountains. The single line of dashes is the position which might have been assumed by the surface that emerged from the Cretaceous sea had it not been destroyed by erosion. The double line of dashes is the position that the base of the Cretaceous rocks—Dakota sandstone—might have assumed had it not been eroded away.

NOTE: This diagram by W. T. Lee appeared in *The Geologic Story of Rocky Mountain National Park* which was published by the National Park Service in 1917.

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Evidence of the Ice Ages can be seen in Rocky Mountain National Park. Lateral moraines, formed by glacial deposition of debris, can be seen throughout the park. The forested slopes on either side of Moraine Park--the North (foreground) and South Lateral Moraines--are excellent examples of this feature type.

The debris, rocks, and boulders, collected by the glaciers as they flowed, were deposited adjacent to, and at the terminus of, their paths. Ridges, called moraines, were left when warming climates caused the glaciers to recede. Lateral or side moraines, as high as 500 feet (155 m) and as long as 2 miles (3.2 km), are located throughout the park. Geologists claim that the South Lateral Moraine in Moraine Park is the most perfectly molded example in the world. Terminal or end moraines serve as natural dams for some of the lakes which dot the landscape; other lakes formed in depressions scooped out by the glaciers. Some eventually filled with sediment and became meadows like Horseshoe Park. Several glaciers remain as evidence of the Ice Age which shaped the physical relief of Rocky Mountain National Park.

CLIMATE

Although the higher altitudes of the park still experience fairly harsh conditions, the climate has moderated during the present interglacial period. Temperatures in Rocky Mountain National Park average 43°F (6°C) on an annual basis. During January, the coldest month, the temperature may fall to -10°F (-23°C). Summer temperatures may reach a daytime maximum of 85°F (20°C) in July.

Annual regional precipitation averages from 16 to 20 inches (41 to 51 cm) on the east and west sides respectively. The east side characteristically receives most of its precipitation in the spring and summer months; on the west side, precipitation is distributed more evenly throughout the year. Thunderstorms and accompanying showers occur in the summer months. Snow is common from fall through spring; at higher elevations it may occasionally snow during the summer months.

Wind action scours large areas in the park free of snow, reducing accumulation to drift areas and northern exposures and causing soil movement in disturbed areas. The warm, dry chinook winds of the east side sometimes attain hurricane velocity during the winter.

SOILS

Although the complexity of soils in Colorado makes it impracticable to predict specific soil series, a general understanding can be achieved by using the life zones they nurture as clues to soil types.[1/] Two basic soil groups exist in Rocky Mountain National Park--the non-forested alpine soils at higher elevations, and the gray-wooded and brown podzolic soils of the subalpine and montane regions. Most of the soils are relatively infertile and sandy due to poor development from the granite substrate. Bottom and swale areas show the best soil development.

Alpine Turf Soils

These soils occur on higher, convex, well-drained slopes. The term "alpine turf" was selected because of its distinct vegetation and the extremely dense, tough sod that blankets the surface. Permanently frozen layers may be found with 6 - 8 feet (1.8 - 2.4 m) of the surface. This black-to-dark brown soil developed from mineral parent material. It is internally and externally well drained with well-defined horizons; the A horizon is divisible into two parts. The surface soils contain 5 - 20 percent organic carbon.

[1/] Soil and plant types are listed in table 5 according to the life zone in which they are found.

TABLE 5

GENERAL DISTRIBUTION OF ROCKY MOUNTAIN NATIONAL PARK
SOIL AND PLANT TYPES BY LIFE ZONE

	Major Soils	Major Plants
Alpine	Alpine Meadow Alpine Turf Bog	Sedges Grasses Dwarf Shrubs Cushion Plants
Subalpine	Brown Podsol Gray-wooded Bog Soil	Spruce Fir Limber Pine Lodgepole Pine Aspen
Upper Montane	Gray-wooded Bog Soil	Lodgepole Pine Aspen Douglas-Fir Ponderosa Pine Juniper Pinon Pine Oak Brush

Alpine Meadow Soils

The meadow soils dominate the lower slopes and concave positions of the landscape where surface runoff is retarded and where seepage from higher areas may collect during the summer. The term "alpine meadow" is given to this group of soils since imperfect-to-poor drainage creates a moist meadow which remains throughout the year. Developed from mineral parent materials, usually local sediments, this black-to-dark brown soil has a greater organic content than turf soils. These soils have A-C profiles with varying degrees of subsurface mottling. Permanently frozen layers range from deep to shallow.

Alpine Bog Soils

The bog soils develop in any place where water remains standing for long periods. Black-to-brown, these highly organic peaty topsoils have A-C profiles with highly mottled subsoils. Often these soils are stratified and strongly reworked by frost action. Dense silty layers are common in deeper parts, and shallow frozen subsoils occur at various depths.

Gray-wooded Soils

These soils are normally located at lower elevations in more open forest cover and shrub sites, but they may also develop at unusually high elevations where low winter temperatures and warm, dry summers control biological activity. The gray-wooded soils are usually thin, moderately dark colored, and have A1 horizons. Thick A2 horizons and fine-textured B horizons with moderate to strong blocky or prismatic structures are also present.

Brown Podzolic Soils

This soil type is most often seen in the more dense fir forests within intermediate precipitation and temperature ranges. Soil surfaces generally exhibit well-defined organic horizons. The upper brownish-colored horizons are apparently the result of dual precipitation of iron and humus.

VEGETATION

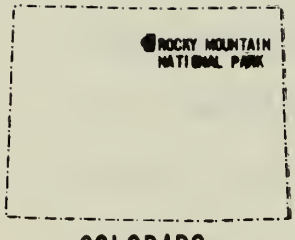
The terrain in Rocky Mountain National Park ranges from 7,640 to 14,256 feet (2,329 to 4,345 m) and intersects several climatic zones. At any given elevation, physical factors such as topography, soil type, exposure to the sun and wind, fire, and human activity contribute to diversity in the vegetation; thus, in viewing any ecosystem, a broad spectrum of interacting variables must be considered. Three life zones are predominant within the park--the alpine, subalpine, and upper montane zones. Their distribution can be seen in figure 6.

Alpine

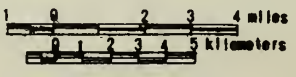
The alpine zone is generally at elevations above 11,500 feet (3,505 m). Although the climatic conditions are very severe in this treeless zone, an array of flowers has adapted and flourish there in July and August. These petite alpine flowers create a cushion of color. The blues of the alpine forget-me-not intermingle with the pink moss campion and the white sandwort. The larger alpine buttercup, marsh marigold, and fairy primrose create a yellow,

Figure 6

LIFE ZONES AND THEIR DOMINANT VEGETATION ROCKY MOUNTAIN NATIONAL PARK



LIFE ZONE	DOMINANT VEGETATION
ALPINE TUNORA	KRUMHOLTZ TUNDRA, DWARF SHRUB-HERB-SEDGE-GRASS-COMPLEX
SUB-ALPINE FOREST	SPRUCE-FIR-LODGEPOLE
MONTANE FOREST	PONDEROSA PINE-DOUGLAS FIR
BRUSHLAND	HERB-SEOGE-GRASS-SAGEBRUSH-MIXED GRASS
WET MEADOW	SEOGE-WILLOW-BOG BIRCH



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white, and pink pattern near snowfields and wet areas. The kings crown, old-man-of-the-mountain, and mountain dryad overlook the low-lying herbs, lichen, and grasses. The entire ecosystem is fragile and susceptible to long-term damages. Plants that are 5 years old may have a diameter of only one quarter inch (6.4 mm), and some mature plants may be several hundred years old.

Although sedge, grass, and lichen-moss communities dominate the moist areas of the tundra, perhaps the most conspicuous vegetation of the wet tundra areas are the low willow and bog birch. Interspersed with the hardy subalpine fir, these thickets texture the hills with their shades of light and dark green.

Subalpine

The subalpine zone is at elevations 9,000 through 11,500 feet (2,743 to 3,505 m). The krummholz area, characterized by stunted trees which mark the transition from the alpine to the subalpine zones, is of major importance to wildlife of both ecosystems.

The characteristic flora of the subalpine zone are the mixed Englemann spruce and subalpine fir climax forest with its understory of herbs, bushes, and mushrooms. Where fire has destroyed the spruce-fir stands, lodgepole pine and aspen are common. Limber pine grows on the more exposed areas, tolerating strong winds and coarse soils.

Several successional types, including species of willow and dwarf birch, thrive in the wet marshy soils, especially around subalpine lakes, streams, and glaciers. These shrubs have succeeded stands of sedge and grass. Other common shrubs of the subalpine zone are the mountain ash, twinberry, and raspberry.

Flowers are abundant in this zone during the summer months. The columbine, pyrolas, fairy slipper, twinflower, pipsissewa, Columbia monkshood, marsh-marigold, parry primrose, and white globeflower make a colorful contrast to the greens of the shrubs and dwarfed conifers.

Upper Montane

The upper montane zone is at elevations up to 9,000 feet (2,743 m). The dominant tree species are the Douglas-fir and ponderosa pine, along with lodgepole pine and aspen. Ponderosa pine mixed with Rocky Mountain juniper grows best on warm southern slopes; north exposures have closed stands of Douglas-fir, ponderosa pine, and lodgepole pine. Limber pine grows on high rocky points, and dry grasslands characterize the lower southern slopes. Sagebrush, antelope brush, thimbleberry, wild raspberry, and squaw currant grow below the tree zone. Blue spruce, willow, alder, cottonwood, and Rocky Mountain birch form a canopy of foliage along streams.

Flowering herbs are numerous in the montane region, including kinni-kinnick, shooting star, porter aster, penstemon, wild geranium and rose, gaillardia, and black-eyed susan. Fireweed grows readily in the areas that are revegetating. The peak of the flowering season

is in July, but flowers abound in the lower regions from late April through September.

Endangered Species

None of the plants proposed for classification as endangered species in the June 16, 1976, *Federal Register* has been found within the park. Two plants on the list have been found in Grand County--*Galus osterhoutii*, which grows at elevations from 7,900 to 9,500 feet (2,408 - 2,896 m), and *Phacelia formulsa*, found from 8,500 to 9,500 feet (2,590 - 2,896 m).

FISH AND WILDLIFE

Distribution of the wide variety of species existing within the park is broadly determined by physiography and evolutionary sequences. On a smaller scale, a more direct factor is the vegetative cover which, as discussed earlier, changes according to elevation and such other physical variables as rainfall, sunlight, minerals, fire, and soil characteristics. All these factors and their interrelationships comprise an ecosystem having its own characteristic fauna. Exceptions also exist. In certain areas of the park where wildlife populations have access to artificial sources of food, the natural community is disturbed and unbalanced concentrations of small animals appear. The distribution of fish and wildlife is discussed in terms of the three life zones in the park, with one additional category--the aquatic community.

Alpine

The land area above tree line, known as alpine tundra, is readily accessible by automobile. Trail Ridge Road winds through the northern section of the park and across the Continental Divide, bringing many visitors in contact with this fragile community. Snowbanks remain year-round in some spots and, even on summer nights, temperatures often go below freezing. Although conditions are very severe, this grassy alpine terrain attracts mammals such as the Rocky Mountain bighorn sheep, marmots, martens, pikas, and pocket gophers.

The tundra also attracts some species of birds including the brown-capped rosy finch, horned lark, water pippet, and white-tailed ptarmigan. Although none has been sighted in recent years, the endangered peregrine falcon was once known to nest within the alpine ecosystem at Iceberg Lake.

Subalpine

Wildlife of the subalpine zone can best be observed from the established trail system or in the natural environmental areas. The snowshoe hare and marten make their home in the heavy stands of spruce and fir typical of the zone. Mountain lions and bobcats roam the area, as do black bears and short-tailed weasels. The herbivorous chickaree squirrel and redbacked vole inhabit adjacent lodgepole pine forests.

The moist climate of subalpine meadows makes a luxuriant habitat for a variety of small mammals including pocket gophers, longtailed voles, jumping mice, marmots, and Nuttall's cottontails. These meadows are also prime summer range for such large browsers and grazers as elk and mule deer. Elk, which were reintroduced within the park in 1913-14, have now reached a population of approximately 1,200 - 1,600 animals.

The winged residents of the subalpine conifer forests include the pine siskin, pygmy nuthatch, Cassin's finch, brown creeper, western tanager, red crossbill, gray jay, Clark's nutcracker, raven, water ouzel, blue grouse, and Audubon's warbler.

The status of the lynx, otter, and wolverine in the park is uncertain. The grizzly bear and northern Rocky Mountain wolf have been extirpated from their entire range in Colorado, leaving the park's ecosystem incomplete.

Upper Montane

The montane zone is the lowest forested area, the majority of which is located on the eastern side of the park. Typical species of mammals which may be seen here include the Abert's squirrel, Richardson's ground squirrel, beaver, coyote, badger, spotted skunk, raccoon, and a variety of bats.

Many birds frequent the low elevations but utilize the entire gamut of zones. The most common are the magpie, Stellar's jay, and robin.

There are over 1,200 elk in Rocky Mountain National Park. Shown here is part of a herd of about 200 which frequents the subalpine meadows near the headwaters of the Big Thompson River.

Aquatic Communities

Rivers, streams, lakes, and ponds are represented in every life zone. These waters and their adjacent lands support the unique aquatic community of life.

Beaver, muskrat, and water shrew are dependent on water as are such birds as the mallard, blue-winged teal, common goldeneye, common merganser, dipper, and spotted sandpiper. The vegetation along waters in the park is a refuge for the Traill's flycatcher, Wilson's warbler, green-tailed towhee, warbling vireo, Lincoln's sparrow, yellow warbler, and the song sparrow.

The fish native to the waters of the region east of the Continental Divide are the western longnosed sucker, western white sucker, longnosed dace, and the endangered green-back cutthroat trout. Exotic species introduced into park waters include brook trout, rainbow trout, brown trout, and various strains of the cutthroat trout. Stocking of fish is no longer practiced, and recent proposals call for the elimination of exotic species and the restoration of native species where possible.

Communities Throughout the Park

Some animals are seen in every area of the park. The least and uinta chipmunks, dwarf shrew, white-tailed jackrabbit, golden-mantled ground squirrel, porcupine, coyote, marten, long-tailed weasel,

and striped skunk can adapt to most ecosystems. The Stellar's jay, gray jay, robin, Clark's nutcracker, and mountain chickadee can also be observed in virtually every region of the park.

Endangered Species

The peregrine falcon, officially designated as an endangered species, was once known to nest within Rocky Mountain National Park. No recent activity has been reported at historic nesting sites, but the National Park Service is considering the artificial reintroduction of the species.

The status of the bald eagle, commonly sighted within the park, is somewhat complicated. The southern subspecies of the bald eagle (*Haliaeetus leucocephalus leucocephalus)* was first listed as endangered in the *Federal Register* of March 11, 1967. The boundary between the breeding ranges of the northern and southern subspecies was determined, for purposes of convenience, to be 40^{o} north latitude. That line is south of the park; therefore, none of the bald eagles in the park are considered to be of the endangered southern subspecies. The Director of the Fish and Wildlife Service proposed a modification to the bird's status in the July 12, 1976, *Federal Register*. Under the proposal set forth, the southern subspecies would be eliminated from the list of endangered fauna, to be replaced simply by the bald eagle species *(Haliaeetus leucocephalus)*. The range where the bald eagle would be considered endangered would be extended to include all but 5 of the 48 conterminous States. Upon adoption of this modification, the bald eagle would be officially considered an endangered species in Rocky Mountain National Park.

The greenback cutthroat trout is an endangered species which once inhabited the headwater streams of the South Platte and Arkansas Rivers in Colorado and possibly in Wyoming. Previously thought to be extinct, pure strains have been identified at several locations in north and south central Colorado. Within the park, this rare trout is found in the upper portion of the Big Thompson River, the Fay Lake drainage, the Hidden Valley drainage above Fall River, and Bear Lake. The latter three populations are the result of restoration efforts, and the status of the fish in the Hidden Valley drainage and Bear Lake is questionable at this time. However, overall conservation efforts of State and Federal agencies have been considered successful, and in the September 26, 1977, *Federal Register,* the Director of the Fish and Wildlife Service proposed reclassifying the fish to the less-restrictive threatened species status.

The greenback cutthroat trout (*Salmo clarki stomias)* is an endangered species found in Rocky Mountain National Park. (Photo courtesy of David Langlois, Colorado Division of Wildlife)

CHAPTER III

THE BIG THOMPSON RIVER AND ITS CORRIDOR

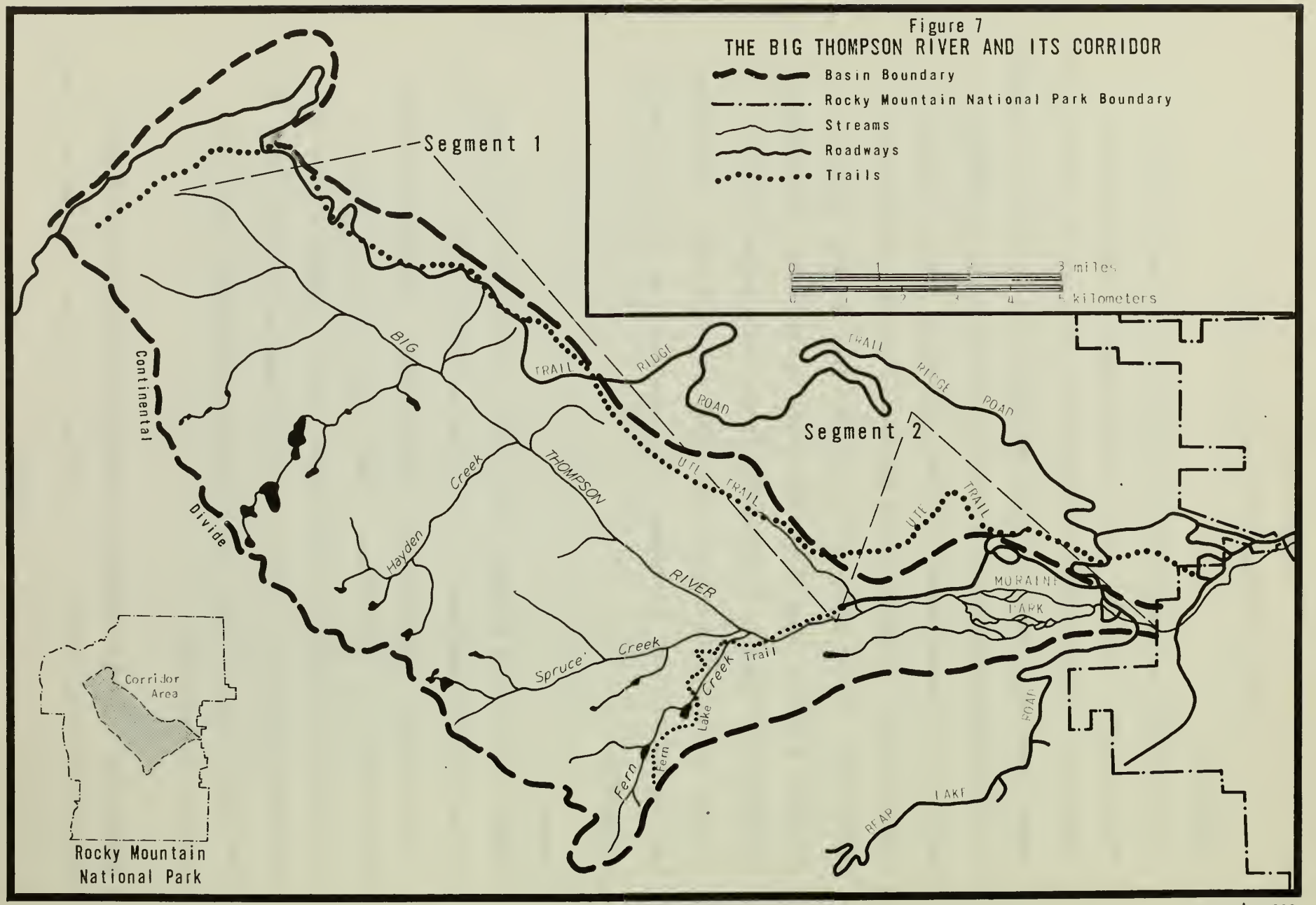
RIVERSCAPE

The Big Thompson can accurately be categorized as a small stream or brook along the 13.6-mile (21.9-km) study segment in Rocky Mountain National Park. Its corridor traverses an unspoiled portion of Colorado's rugged Front Range, harboring plant and animal life typical of the region. All the indigenous species of the park exist within the Big Thompson basin. In its course through the park, the stream drops in elevation from 11,120 feet (3,389 m) at its source to 7,650 feet (2,331 m) in Tuxedo Park. Eleven small tributaries flow into the Big Thompson, providing a link to some 26 mountain lakes in the basin. The drainage, diagrammed in figure 7, is approximately 44 square miles (114 m^2) in area and varies in width from 2 to 4 miles (3.2 to 6.4 km). The stream has been divided into two segments which are described in the following commentary.

Segment I

Segment I of the Big Thompson runs 11 miles (17.7 km) from its source to the Fern Lake trailhead. The Continental Divide forms a rocky barrier to the southwest of the drainage, reaching almost 13,000 feet (3,962 m) in some places; to the northeast, Trail Ridge rises precipitously. Although Trail Ridge Road is above tree line for 11 miles (18 km) and eventually crosses the crest of the Front Range and the Continental Divide, the steep canyon and dense vegetation allow the motorist only brief glimpses of the stream.

Alpine Zone. The Big Thompson originates above tree line near Forest Canyon Pass at an elevation of 11,120 feet (3,389 m). Its source, a small



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snowfield, can be seen from Gore Range Overlook on Trail Ridge Road. From this overlook the Ute Trail angles southwest toward the Continental Divide, passing about 150 feet (46 m) above the headwaters. North of the headwaters and just south of the Ute Trail are two small mountain lakes. The area near the headwaters endures severe weather during much of the year, but in the summer the tundra supports a profusion of alpine flowers and stunted thickets of subalpine fir and spruce. The initial sliver of a stream drops some 200 feet (61 m) through alpine terrain before disappearing into the trees below.

Subalpine Zone. At tree line the Big Thompson cuts a rapid southeasterly course through a forest of subalpine fir and Englemann spruce intermingled with limber pine for 2/5 of a mile (0.6 km) until it enters a subalpine meadow. This island of grassy vegetation extends for about 1 mile (1.6 km), nurturing numerous small mammals such as chipmunks, pine squirrels, pocket gophers, rabbits, voles, marmots, and mice. Droppings, tracks, and trampled vegetation are signs of the numerous elk and mule deer which frequent this meadow during the summer.

Beyond the meadow park, the stream again enters characteristic subalpine forest environs for the next 5 miles (8 km). The vegetation returns to increasingly dense stands of subalpine fir and Englemann spruce. The forest floor is covered with plants of the heath and huckleberry families. Varieties of moss, mushrooms, lichens, and wildflowers flourish in the dimly sunlit conditions. Dense deadfall crowds the canyon, creating extremely difficult hiking and backpacking conditions.

View of the Big Thompson drainage from Forest Canyon Pass, near the headwaters in the alpine zone.

This relatively swift stretch, between 5 and 15 feet (1.5 - 4.6 m) wide, is lined with willow, alder, and Rocky Mountain birch. Wildlife typical of the subalpine zone abounds here, and the stream is inhabited by the endangered greenback cutthroat trout.

Upper Montane Zone. The confluence with Lost Creek in Raspberry Park marks the transition from the subalpine to the upper montane zone. The stream continues at its previous pace, becoming more rapid just before entering a narrow, deep gorge. Hiking opportunities within the Big Thompson corridor are eliminated for about a mile (1.6 km) at this point. The canyon walls widen near the confluence with Spruce Creek, and the water-course broadens to 15 to 40 feet (5 to 12 m). Narrowleaf cottonwood, willow, water birch, and alder grow along the banks, and beaver dams have altered the stream's flow, creating a specialized aquatic habitat.

The area downstream from the gorge is accessible by an established hiking-riding trail from Moraine Park to Fern Lake which follows the streambank through stands of ponderosa and lodgepole pine and groves of aspen. The trail, its bridge at The Pool, and some campsites are the only manmade intrusions in the upper portion of the stream. Segment I of the Big Thompson River has been included in its entirety in the National Park Service's wilderness proposal.

Segment II

Segment II of the Big Thompson runs 2.6 miles (4.2 km) from Fern Lake trailhead to the eastern boundary of Rocky Mountain National Park. The surroundings of this second segment are in sharp contrast to the wilderness

of the first 11 miles (18 km). The stream enters and meanders through Moraine Park, a wide meadow bordered by forested lateral moraines.

A road runs along the northern edge of Moraine Park leading to a campground and picnic and parking area at the Fern Lake trailhead which are partially concealed from the streambank. There are a number of private inholdings, shown in figure 8, within 1/4 mile (0.4 km) of the stream. These lands are gradually being acquired by the National Park Service. Old, log-style summer homes dot the southern bank in this area.

The level terrain of Moraine Park allows the Big Thompson to wander in an irregular pattern of narrow channels which merge at the eastern edge of the meadow. After flowing over a stretch of large boulders, under the Bear Lake Road bridge, and through Tuxedo Park, the stream leaves the national park at its eastern boundary.

RECREATION

The scenic Trail Ridge Road is available for those visitors seeking a drive-through experience. A 5-mile (8-km) portion of the route at the perimeter of the Big Thompson basin runs above tree line. Several overlooks offer panoramas of alpine meadows and, to the south, the Continental Divide. The park visitor can also view some of the alpine lakes and tributaries of the basin; however, only occasional glimpses of the Big Thompson River, obscured by the coniferous forest, can be seen from the overlooks.

Figure 8

NON-FEDERAL INHOLDINGS
BIG THOMPSON RIVER CORRIDOR

Park Boundary
Roadways
Stream
Inholding

N
W
E
S

600 0 600 1200 feet
600 0 1200 2400 600 meters

WSRS | 20,040
DSC | FEB 79

(Above) The river emerges from Forest Canyon into a grassy montane meadow known as Moraine Park.
(Left) Stands of subalpine fir and Englemann spruce are thick in the subalpine zones of the Big Thompson basin.

The Ute Trail also follows Trail Ridge, providing an opportunity to hike the old Indian route over Forest Canyon Pass. Another popular trail in the basin is Fern Lake Trail. This combination riding-hiking trail begins at Fern Lake trailhead in Moraine Park and follows the stream through groves of aspen, past beaver ponds and Arch Rock, to a deep portion of the Big Thompson called The Pool. Beyond this point the corridor becomes very steep and narrow, blocking hiking access along the banks. The trail follows Fern Creek to the south, past Fern and Marguerite Falls and the brilliant Odessa Lake, then winds back east toward Bear Lake and out of the Big Thompson basin.

Fern Lake Trail is heavily used by recreationists engaged in hiking, backpacking, organized nature studies, bird watching, horseback riding, and fishing. However, fishing is not permitted in the Big Thompson River above the confluence of Spruce Creek in order to protect the endangered greenback cutthroat trout.

The Big Thompson affords a true wilderness experience from its headwaters to Fern Lake trailhead. Day use of the stretch above the confluence with Spruce Creek is limited by the narrow gorge, the Continental Divide, and Trail Ridge. Forest Canyon Pass and Rock Cut are the easiest points of entry to the upper basin. Since there are no established trails upstream from Fern Lake Trail, it is necessary to bushwack through the dense deadfall that chokes the canyon. Hiking the corridor upstream from Spruce Creek is a strenuous undertaking for even the most physically fit backpacker. Park regulations require that anyone planning to camp in the drainage obtain a permit; there are no designated back-country

(Left and Above) Fern Lake Trail is popular for both horseback trips and backpacking.
(Below) There is no established trail in the upper segment of the Big Thompson River, and hikers must bushwhack through dense deadfall.

campsites in the upper basin, and fires are not permitted. In 1976, 189 parties consisting of 468 visitors registered to camp in the canyon.

Throughout its entire length within the park the Big Thompson is generally both narrow and shallow. There are no opportunities for watercraft-oriented recreation.

LAND OWNERSHIP

At the present time there are 18 private inholdings within 1/4 mile (0.4 km) of segment II of the river. Fifteen landowners have a total of 19.19 acres (7.8 ha), and the individual tracts range from about 1/4 of an acre (.13 ha) to over 3 acres (1.2 ha). Most of the private lands and summer cabins are on the south side of the stream and are less than a mile (1.6 km) from the eastern boundary of the park. Three inholdings are on the north side of the Big Thompson near the road leading to the Moraine Park campground, less than a mile (1.6 km) from the larger group. The Moraine Park inholdings are shown in figure 8.

HISTORY AND ARCHEOLOGY

In 1830 fur traders first wrote of the Pipe River, so-called by the Arapaho because they would occasionally sit beside it and carve stone pipes. It is uncertain whether it was renamed for Phillip Thompson, a mule trader; David Thompson, of the Northwest Fur Company; or another man named Thompson who was killed by the Indians alongside the river.

The William Allen White Cabins, a complex of five buildings, and Moraine Park Lodge, which are immediately adjacent to the Big Thompson River study corridor, are listed in the National Register of Historic Places.

William Allen White, the renowned newspaper editor, spent summers at this retreat in Moraine Park from 1912 through 1943. These buildings now serve as a reminder of the era when there were many summer homes throughout the park. Moraine Park Lodge, built in 1922, served as the central building of a privately owned summer resort. Purchased by the Government, it has served as the park's principal museum since 1937.

The Ute Trail, a historic Indian route across the Continental Divide that runs along the northern edge of the Big Thompson basin in the park, has been nominated to the National Register of Historic Places. There are no national historic, natural, or environmental education landmarks within the basin.

There is a good view of the Ute Trail and Forest Canyon Pass from Gore Range Overlook on Trail Ridge Road. This route over the Continental Divide is directly above the snowfield at the headwaters of the Big Thompson River on the first ridge in the center of this picture.

The studies of Yelm and Husted, which were discussed in chapter II, identified specific aboriginal sites and trails. Archeological sites within the Big Thompson basin include sporadically occupied hunting camps and the frequently occupied campsites along the Ute Trail. Artifacts have been found from the river's lower segment to its headwaters, indicating that the basin was a route to a mountain pass.

Forest Canyon Pass, located just above the Big Thompson headwaters and overlooking Forest Canyon, was probably the preferred route across the Continental Divide in this region. A site discovered there, the largest in the park, probably served as a lookout; although it is high and unprotected, it may also have served intermittently as a campsite. Evidence found at the site--pottery chips, arrowheads, and scrapers--indicate that use of this area dates back 8,000 years.

Open parks and meadows at lower elevations served as camping areas. Almost all traces of aboriginal occupation in Moraine Park have been lost to the impacts of vacationers and summer residents, but occasionally chips are found, especially near the North Lateral Moraine.

Sandstone pieces, chips, and arrowheads have been found at the west end of Moraine Park and farther upstream where Forest Canyon begins to narrow. Unlike such easily accessible montane meadows as Moraine Park, thick stands of coniferous trees and heavy growth on the forest floor in the upper end of the Big Thompson basin have limited the exploitation of potential archeological sites.

GEOLOGY AND PHYSIOGRAPHY

As is the case in all of Rocky Mountain National Park, no sedimentary rock remains within the study area. Subject to past eons of encroaching seas, volcanic activity, uplifting, and erosion, today's mountains consist of Precambrian gneiss and schist with intrusions of granite and pegmatite.

The location of the Big Thompson drainage has been relatively unchanged over millions of years. During that period the river carved a V-shaped canyon through the rock. Approximately 1,000,000 years ago, Ice Age glaciers scooped out the U-shaped canyon characteristic of the upper basin. Because the glaciers did not advance to the Big Thompson Canyon outside the park's eastern boundary, that area is an excellent example of what the steep V-shaped canyon looked like before glaciers straightened the river's course and enlarged its valley. The debris, rocks, and boulders collected by the glacier on its path through Forest Canyon were left as side or lateral moraines when climatic warming caused the glacier to recede. Geologists claim that the South Lateral Moraine in Moraine Park is the most perfectly molded feature of its type known to exist.

SOILS

Except for a tendency to be generally more fertile in the swale areas along the stream, soils of the Big Thompson basin generally resemble others seen throughout the park. These soils, whose parent material was Precambrian rock, are stabilized by the undisturbed forest. Erosion, therefore, is not a problem along the stream.

The Continental Divide and Trail Ridge rise steeply, isolating this corridor from the rest of the park.

Nonforested alpine and alpine bog soils are evident in the vicinity of the headwaters of the Big Thompson. Gray-wooded and brown podzolic soils are characteristic of the subalpine and montane zones.

WATER

Flow

The average annaul discharge for the Big Thompson's 44-square mile (114 km^2) drainage within the park is about 29,600 acre-feet (36.5 million m^3), or 41 cfs (1.2 m^3/sec).[1/] From 1946 to 1974 its maximum discharge was 1,660 cfs (47 m^3/sec); minimum flow in the range of 8 - 20 cfs (0.25 - 0.65 m^3/sec) is normally recorded in January and February.[2/] At minimum flow, the Big Thompson at Estes Park is about 10 feet (3 m) wide and 1 foot (0.3 m) deep.

The volume of water can increase dramatically during a period of rapidly melting snow or when a thunderstorm cell, with its accompanying showers, becomes centered over the drainage. During the Big Thompson flood of July 31, 1976, a flow of approximately 31,000 cfs (884 m^3/sec) was reported at a point 25 miles (40.3 km) downstream from the study segment. The river rose some 19 feet (6 m) above its level of the previous afternoon. This storm was centered below the study segment, and the stream in the park was not affected by it.

1/ This figure is extrapolated from the records of two downstream gaging stations: (1) Estes Park, located 0.3 mile (0.5 km) northwest of the Bureau of Reclamation's power plant at Lake Estes; and (2) Fall River, located 1/2 mile (0.8 km) upstream from the confluence of Fall River with the Big Thompson, for which incomplete records from 1947-53 exist. The sum of their average annual discharges (91,000 and 28,000 acre-feet, respectively) divided by the sum of their drainage areas (137 and 39.8 mi^2, respectively) results in an average discharge of 673 acre-feet per square mile (320,520 m^3/km^2).

2/ Recorded downstream from the study segment at Estes Park gaging station.

Quality

The river in Rocky Mountain National Park, sampled on two occasions, met the State's highest criteria for Class A-1 waters except for the two slightly acid pH readings recorded in table 6. The water is, therefore, classified as suitable for primary contact recreation.

The high water quality of the Big Thompson River is mostly attributable to its source and isolation. The runoff from the winter snows in May, June, and July makes up approximately 75 percent of its annual flow. The Precambrian rock of the headwaters region provides few minerals and only a slight acidity. The undisturbed forests through which the stream runs bind the soil, contributing little turbidity. Elk and deer are probably the greatest source of contamination.

Rights

There are no significant nonfederal water rights in the basin. Some of the remaining private inholdings in Moraine Park have wells that draw small amounts of water during a few months of the year.

Federal water rights include the Rocky Mountain National Park headquarters system which is fed by the Big Thompson River. The other publicly used federal water right is a spring supply southeast of Moraine Park campground which serves the campers there.

VEGETATION

The Big Thompson passes through three life zones in Rocky Mountain National Park. Beginning in the alpine zone, it flows predominantly through subalpine environs and exits the park by way of the montane meadows of Moraine and Tuxedo Parks.

Table 6

WATER QUALITY ANALYSIS OF THE BIG THOMPSON RIVER

	Above Spruce Creek		Moraine Park	
	9-14-76	9-27-76	9-21-76	9-28-76
Nitrates	0.13 ppm	0.15 ppm	0.11 ppm	0.11 ppm
Ammonia (N)	0.15 ppm	0.015 ppm	0.15 ppm	0.16 ppm
(NH3)	0.18 ppm	na*	0.18 ppm	na
(NH4)	0.19 ppm	na	0.19 ppm	na
Turbidity	0.47 JTU	0.51 JTU	0.64 JTU	0.64 JTU
Temperature	6.5 C (43.7 F)	6.0 C (42.8 F)	6.0 C (42.8 F)	6.5 C (43.7 F)
Dissolved Oxygen	8.9 mg/1	9.1 mg/1	8.5 mg/1	8.5 mg/1
pH	7.10	6.4	6.85	6.0
Suspended Solids	4 mg/1	5 mg/1	6 mg/1	7 mg/1
Total Coliform	0/100 ml	5/100 ml	20/100 ml	5/100 ml
Fecal Coliform	0/100 ml	2/100 ml	2/100 ml	0/100 ml
Fecal Streptococci	0/100 ml	0/100 ml	0/100 ml	0/100 ml
Standard Plate Count	270/100 ml	250/100 ml	380/100 ml	170/100 ml
Iron	na	na	3.5 mg/1	3.5 mg/1
Alkalinity (as $CaCO_3$)	na	$\leq$20 mg/1	$\leq$20 mg/1	$\leq$20 mg/1

*Data unavailable

Alpine

The headwaters originate above tree line in the alpine zone at an elevation of 11,120 feet (3,389 m). Although the tree line in north-central Colorado is commonly closer to 11,500 feet (3,505 m), the head of the valley faces east, allowing large snowbanks to remain all year. The tree line dips distinctly here where vegetation growth is inhibited by snow, winds, and severe climatic conditions.

Lichen-covered rocks and tundra grasses are interspersed with thickets of subalpine fir and willows. Exposure to strong winds has stunted and deformed the larger vegetation.

Small mountain flowers have adapted to this extreme environment and its brief growing season. The marsh-marigold, buttercup, and fairy primrose favor moist environments and can be seen along the snowfield at the source of the Big Thompson River or around the two alpine lakes above the headwaters. The cushionlike flowers, such as the sandwort, moss campion, and alpine forget-me-not, color the tundra as do the more conspicuous mountain dryad, Rydbergia, rockjasmine, and kings crown.

Subalpine

The stream remains in the alpine zone for less than 1/4 mile (0.4 km), dropping vertically about 200 feet (61 m) to a subalpine forest of fir and Englemann spruce mixed with some lodgepole pine. This initial conifer cover, extending about 4/10 of a mile (0.6 km), leads downstream to a wet subalpine meadow with thick grass-sedge stands and thickets of dwarf willows and birch.

Dense stands of conifers, with an understory of mountain ash, twinberry, and wild raspberry, typify the next 5 miles (8 km) downstream from the meadow. The forest floor is the habitat of wildflowers such as pyrola, fairy slipper, twinflower, pipsissewa, columbine, American monkshood, Parry primrose, elephanthead, and deathcamas. Ladies-tresses, brookcress, and rose crown grow along the banks of the stream.

Upper Montane

The upper montane zone begins near the confluence of Lost Creek in Raspberry Park. On the northern slopes of the zone there is a mixture of Douglas-fir and ponderosa pine with an understory of kinnikinnick and juniper. Ponderosa pine becomes more dominant on rocky slopes, concealing a herbaceous cover of mountain muhly and thickets of bitterbrush. Successional stages of lodgepole and aspen thrive in the basin from the confluence of Spruce Creek to Moraine Park. This segment also nurtures alder, willow, blue spruce, and cottonwood.

The river enters a montane meadow at Moraine Park. The high water table maintains a lush growth of willows and other low shrubs. Climax stands composed of grass, sedge, and forbs also grow in the meadow.

Characteristic flowers of the corridor's montane zone are the shooting star, Porter aster, penstemon, wild geranium and rose, gaillardia, black-eyed susan, and fireweed.

Downstream from the Bear Lake Road bridge across the Big Thompson River, vegetation again is characteristic of the forested montane area previously

described. Vegetation in Tuxedo Park is dense, except for occasional fishermen's paths and the evidence of private inholdings.

FISH AND WILDLIFE

All three life zones in Rocky Mountain National Park are traversed by the Big Thompson during its descent, and the stream supports an aquatic community along its entire length. Therefore, it can be expected that all of the 67 mammal species, and the more than 200 species of birds which are park residents or visitors, inhabit the river basin.

Endangered Species

The greenback cutthroat trout, which has recently been proposed for reclassification from an endangered to a threatened species, dwell in the upper portion of the Big Thompson, three other locations in the park, and three other locations in Colorado. The National Park Service prohibits both the taking and possession of this fish. The Big Thompson River is closed to all fishing above the confluence with Spruce Creek.

As pointed out in chapter II, the endangered peregrine falcon was historically a resident of the park. There are plans for the reintroduction of the species through a cooperative program with Cornell University. The upper Big Thompson Canyon has been identified as a possible site for this program.

CHAPTER IV

ELIGIBILITY DETERMINATION

Following the compilation of existing descriptive data and the field investigation of the stream corridor, the study team evaluated the Big Thompson River for its suitability for inclusion in the National Wild and Scenic Rivers System. The team utilized the following four-step approach in the eligibility determination process:

(1) The stream was divided into two segments.

(2) The segments' corridors were evaluated on their outstanding values.

(3) The river itself was evaluated on it specific water-related values.

(4) The stream's suitability or unsuitability for inclusion in the national system was established.

RIVER SEGMENTS

Differences in physiography and nature of intrusions between the upper and lower Big Thompson basin within the park led to a division of the stream into two segments. Fern Lake trailhead on the north side of the corridor is the point of division between the segments (see figure 7). In segment 1, which runs from the headwaters to the Fern Lake trailhead, the Big Thompson courses through a rather narrow canyon. Fern Lake trail follows the river corridor upstream for about 1-3/4 miles (2.8 km). The trail, a rustic bridge at The Pool, and a small backcountry camping area upstream from The Pool are the only intrusions in the upper segment. The entire 11-mile (17.7 km) length of segment 1 is within the National Park Service's wilderness proposal.

Segment 2, from Fern Lake trailhead downstream to the park's eastern boundary, is 2.6 miles (4.2 km) in length. The physiography becomes less confining, and the stream flows slowly through the open expanse of Moraine Park for much of this segment. Roads, bridges, cabins, and utility lines are located along this short stretch of the Big Thompson.

CORRIDOR VALUES

The joint Department of the Interior-Department of Agriculture *Guidelines for Evaluating Wild, Scenic and Recreational River Areas Proposed for Inclusion in the National Wild and Scenic Rivers System Under Section 2, Public Law 90-542* requires that the "river and its environment should be outstandingly remarkable." The Wild and Scenic Rivers Act requires the specific consideration of "scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values."

The two river segments were evaluated separately during the determination of their requisite values. Overall, as shown in table 7, the majority of these values were adjudged to be of excellent or better quality. Only two, however, were considered to meet the requirements set forth in the act and *Guidelines*, i.e., to be "outstandingly remarkable."

Fishery values within segment 1 were determined to be outstanding. That judgment was based upon the presence of greenback cutthroat trout in the upper portion of the Big Thompson River. These native trout are listed by the Fish and Wildlife Service as an endangered species, but

in September 1977 that agency proposed a less restrictive classification--threatened species--for the fish.

Based largely upon evidence of glaciation, segment 2 was considered to possess outstanding geologic values. South Lateral Moraine, a textbook-quality feature, is especially noteworthy.

TABLE 7

BIG THOMPSON RIVER VALUES - IMMEDIATE ENVIRONMENT

	Segment 1			Segment 2		
	Headwaters to Fern Lake Trailhead			Fern Lake Trailhead to N.P. Boundary		
	Average	Excellent	Outstanding	Average	Excellent	Outstanding
Scenic		X			X	
Recreation		X		X		
Geologic		X				X
Fish			X	X		
Wildlife		X			X	
Historic	X			X		
Archeologic	X			X		

RIVER VALUES

The *Guidelines* specifies certain values which the river itself must possess. It must be in a free-flowing natural condition, be long enough to provide a meaningful experience, have sufficient volume, and have high quality water. Details of these specifications, and exceptions to them, are contained in the *Guidelines*. The study team's findings regarding the Big Thompson's eligibility in relation to these values, summarized in table 8, are as follows:

(1) The stream is free-flowing along the entire 13.6-mile (21.9-km) length of the study segment and is eligible under this criterion.

(2) The 13.6-mile (21.9 km) study segment within the park is far short of the *Guidelines'* 25-mile (40.2-km) criterion; thus, the stream was considered to be ineligible due to length.

(3) Stream volume was considered sufficient for eligibility since it is adequate for the "full enjoyment of water-related outdoor recreation activities generally associated with comparable rivers."

(4) The stream, which is considered suitable for primary contact recreation, exceeds water quality eligibility requirements.

TABLE 8

BIG THOMPSON RIVER VALUES - WATER

	Eligible	Ineligible
Free-flowing	X	
Length		X
Volume	X	
Quality	X	

ELIGIBILITY

Excepting the 25-mile (40.2 km) length criterion, the Big Thompson River was found to meet the qualifications for a potential component of the National Wild and Scenic Rivers System. Although *Guidelines* provides for inclusion of shorter river segments, the study team found no features of such an outstanding nature as to justify an exception. Therefore, the stream was considered ineligible for addition to the national system.

If the stream is designated a component of the national system, no easement or fee simple land acquisitions will be necessary. Additional administrative costs of amending the existing management plan, signing, and preparing brochures would be minimal, not exceeding $1,000. No additional administrative, operational, or maintenance costs would be involved.

CHAPTER V

ALTERNATIVE MANAGEMENT

The fact that the Big Thompson River was determined to be unsuitable for inclusion in the National Wild and Scenic Rivers System, and thus ineligible for the protection afforded by that designation, is expected to have no adverse effect on the stream. The study segment is entirely within the exterior boundaries of Rocky Mountain National Park where overall management policy is protective of environmental values. In addition, segment 1 is entirely within the National Park Service's wilderness area proposal and may in the future receive the additional protection accorded designated wilderness.

PRESENT MANAGEMENT POLICY

Resource management policy for Rocky Mountain National Park is outlined in its *Statement of Management* which became effective in March 1977. Land categorization and management policy corresponds to the National Park Service's *Management Policies*, a servicewide document dated April 1975, in which four general land classification zones--natural, historic, development, and special use--are delineated. The natural zone, in turn, includes the wilderness, environmental protection, outstanding natural feature within wilderness, and natural environment subzones. The special use zone in Rocky Mountain National Park contains the reservoir (or water rights) and private development subzones. (Figure 9 illustrates land classification distribution within the park.)

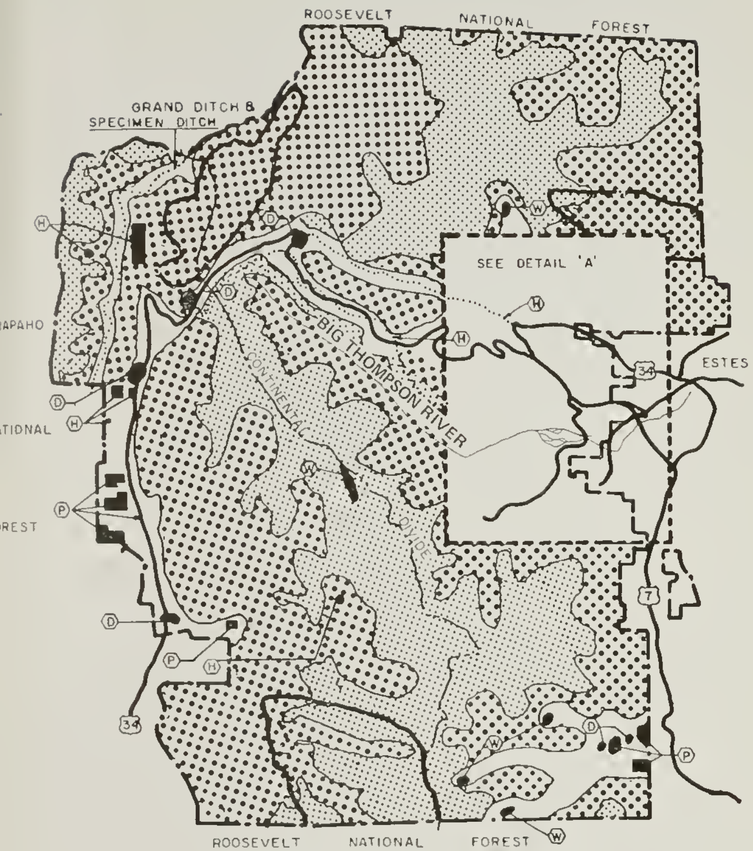
The Big Thompson River is within the wilderness subzone from its source to Fern Lake trailhead. Although any particular land classification

is subject to management objectives and policy, which can change, the portion of the study corridor in this subzone is *de facto* wilderness and is now being managed to protect its inherent values. In addition to this protective management classification, rugged physiography and dense vegetation act as natural constraints against overuse and attendant environmental degradation.

The stream is in the natural environment subzone from Fern Lake trailhead to the east boundary of the national park. Roads and such dispersed recreation facilities as picnic areas and interpretive facilities are permissible, but protection of the natural environment is a primary consideration in any development within this subzone. Interspersed within the natural zone are discrete, generally small parcels of land classified as development, historic, and special use zones. The private development subzone of the special use zone is represented along the lower stream segment. Private inholdings along the study corridor, primarily in the Moraine Park region, have been substantially reduced in recent years.

WILDERNESS MANAGEMENT POLICY

The National Park Service has proposed that just over 240,000 acres (97,140 ha) within Rocky Mountain National Park, representing over 91 percent of the park's total acres, be designated as wilderness and included in the National Wilderness Preservation System (see figure 2). The measure is now before Congress.



PARK BOUNDARY

ROADS

WILDERNESS SUBZONE

ENVIRONMENTAL PROTECTION SUBZONE

OUTSTANDING NATURAL FEATURE SUBZONE WITHIN WILDERNESS

NATURAL ENVIRONMENT SUBZONE

HISTORIC ZONE (H)

DEVELOPMENT ZONE (O)

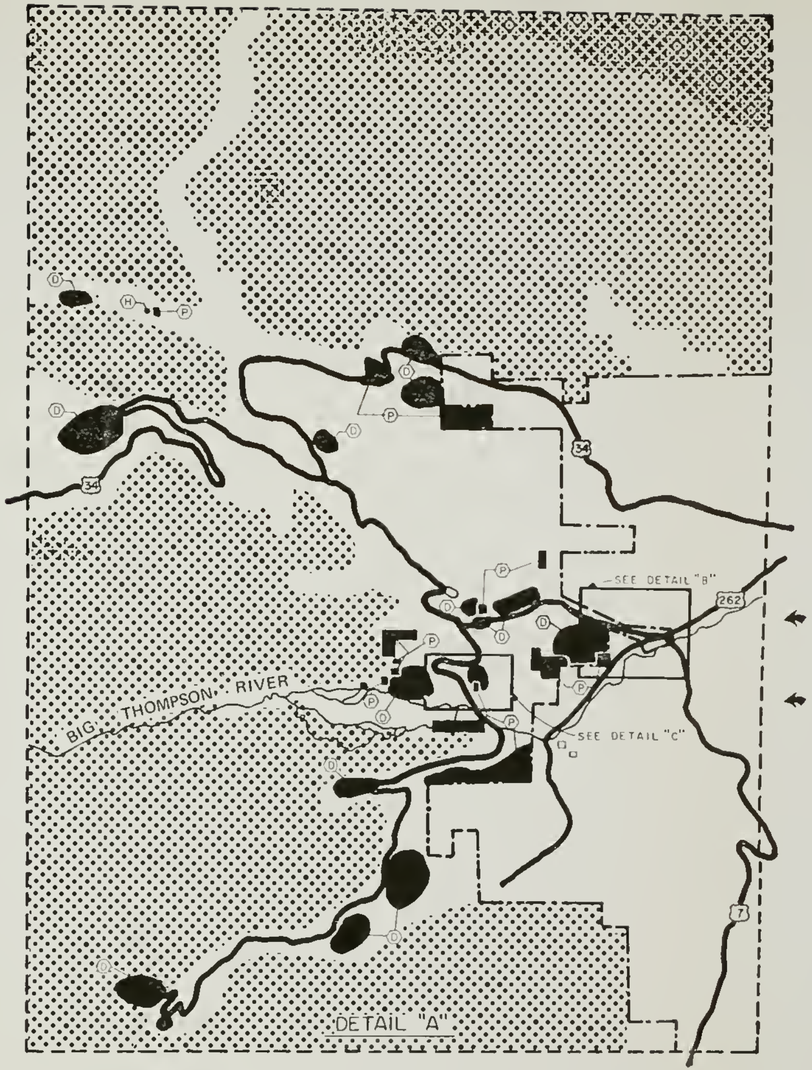
RESERVOIR SUBZONE (WATER RIGHTS) (W)

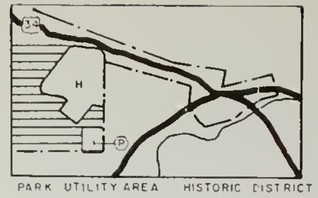
PRIVATE DEVELOPMENT SUBZONE (P)

N

0 1 2 3 4 5
MILES

NOTE: PARK IS PRIMARILY A NATURAL ZONE





DETAIL "B"

DETAIL "C"

PARK BOUNDARY

ROADS

WILDERNESS SUBZONE

NATURAL ENVIRONMENT SUBZONE

OUTSTANDING NATURAL FEATURE SUBZONE WITHIN WILDERNESS

ENVIRONMENTAL PROTECTION SUBZONE

DEVELOPMENT ZONE (D) OR (O)

PRIVATE DEVELOPMENT ZONE (P)

HISTORIC ZONE (H)

Figure 9

LAND CLASSIFICATION

ROCKY MOUNTAIN NATIONAL PARK

COLORADO

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DSC | FEB 79

The portion of the Big Thompson River from its source to Fern Lake trailhead is included within Unit 4, or Enos Mills Unit, of the wilderness proposal. Congressional designation of the area as a wilderness would create a legislative mandate for the National Park Service to "be responsible for preserving the wilderness character of the area . . .," eliminating the possibility of areas now within the wilderness subzone being subject to future administrative reclassification to a less restrictive management category.

APPENDIX

Official Comments on

March 1978 Draft Report

DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20250

October 24 1978

Honorable Cecil D. Andrus
Secretary of the Interior
Washington, D.C. 20240

Dear Mr. Secretary:

This is in response to your June 12, 1978, letter requesting our views on your Department's proposed report on the Big Thompson River in Colorado.

We agree with the recommendation in the report that the Big Thompson should not be added to the National Wild and Scenic Rivers System. However, we believe in this case that the 13.6 miles in length should not be the major factor used in finding that the river should not be included.

This finding should be based on the public benefits that would or would not accrue from designation of the river. In the case of the Big Thompson, little, if any, would be realized. There is little threat to the river from development or overuse because the river is primarily within a proposed wilderness and is managed as such.

Thank you for the opportunity to review the report.

Sincerely,

Bob Bergland
Secretary

DEPARTMENT OF THE ARMY
OFFICE OF THE UNDER SECRETARY
WASHINGTON, D.C. 20310

21 JUL 1978

Honorable Cecil D. Andrus
Secretary of the Interior
Washington, D. C. 20240

Dear Mr. Secretary:

In compliance with Section 4(b) of the Wild and Scenic Rivers Act, the views of the Secretary of the Army were requested for the draft report prepared by the Heritage Conservation and Recreation Service on the Big Thompson River, Colorado. Your correspondence was referred to as L58(410).

We have reviewed the report and, as formulated, foresee no conflict with projects or programs of this Department.

We appreciate the opportunity to review your report.

Sincerely,

Michael Blumenfeld
Deputy Under Secretary

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII
1860 LINCOLN STREET
DENVER, COLORADO 80203

SEP 6 1978

Ref: 8W-EE

Mr. Robert Eastman
National Park Service
Office of the Secretary
U.S. Department of Interior
Washington, D.C. 20240

Dear Mr. Eastman:

Region VIII has reviewed the Draft Report on the Big Thompson River Wild and Scenic Study on behalf of Administrator Doug Costle. We have no further comments to offer.

Sincerely yours,

Alan Merson
Regional Administrator

ES-40128

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
REGIONAL OFFICE
EXECUTIVE TOWER - 1405 CURTIS STREET
DENVER, COLORADO 80202

410 - Rm. 1214
for info & file
cg-190

July 21, 1978

REGION VIII

IN REPLY REFER TO:
8CP

Honorable Cecil D. Andrus
Secretary of the Interior
Washington, D.C. 20240

Dear Mr. Secretary:

This is to advise you that the Denver Regional Office, Department of Housing and Urban Development, has no objection in regard to the Big Thompson Wild and Scenic River Study report (DRAFT), dated March, 1978. Although this Department funded an extensive post-disaster planning assistance grant for the Big Thompson flood disaster of 1976, the planning study area was below Estes Park, east through the Big Thompson Canyon to Loveland; hence, the subject scenic river designation upstream in Rocky Mountain National Park is not in conflict with the HUD-funded Big Thompson Disaster planning grant. The recommendations of these two studies, therefore, are not conflicting.

Since the Wild and Scenic River proposed designation is within the boundaries of Rocky Mountain National Park, the overall management policy (NPS) is indicated as already protective of environmental values, and Segment 1 is entirely within the NPS wilderness area proposal. There are no active recreation areas or substantive second home developments (except for some isolated inholdings) affected by this designation because it is within the park boundaries; hence, this issue is not applicable as an alternative assessment.

Sincerely,

Betty Miller
Regional Administrator

DEPARTMENT OF TRANSPORTATION
REGIONAL REPRESENTATIVE OF THE SECRETARY
SUITE 1822, PRUDENTIAL PLAZA BUILDING
1050 SEVENTEENTH STREET
DENVER, COLORADO 80202

REGION VIII

July 13, 1978

U. S. Department of the Interior
National Park Service
Washington, D. C. 20240

Gentlemen:

Thank you for the opportunity to review your draft environmental impact statement concerning the Big Thompson River in Colorado.

We have no substantive comments to make on this EIS.

Sincerely,

William C. Evans

WILLIAM C. EVANS
Senior Staff Officer

As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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